SCHOOL LIFE

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OFFICE OF EDUCATION

THE TEACHING OF FOREIGN LANGUAGES, CURRENT ISSUES AND THE FUTURE

WILMARTH STARR

NEEDED—A WAY TO SAVE CURIOSITY

FRANCIS A. J. IANNI and LOIS JOSEPHS

NOVEMBER 1963

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The function of fancy in a child

TRUTH IS IMPORTANT, and imagination is important; but imagination develops earlier in the history of the individual, as in that of the race. So long as the child's physical needs are attended to, he finds games far more interesting than reality. In games he is a king . . . . In reality he has to go to bed at a certain time, and to obey a host of tiresome precepts. . . . Seeing that his inferiority to other people is normal, not pathological, its compensation in fantasy is also normal and not pathological. His games do not take up time which might be more profitably spent in other ways . . . . An adult who indulges in dreams may be told to exert himself in order to realize them; but a child cannot yet realize dreams which it is right that he should have. He does not regard his fancies as a permanent substitute for reality; on the contrary, he ardently hopes to translate them into fact when the time comes.

It is a dangerous error to confound truth with matter-of-fact. Our life is governed not only by facts, but by hopes; the kind of truthfulness which sees nothing but facts is a prison for the human spirit. Dreams are only to be condemned when they are a lazy substitute for an effort to change reality; when they are an incentive, they are fulfilling a vital purpose in the incarnation of human ideals. To kill fancy in childhood is to make a slave to what exists, a creature tethered to earth and therefore unable to create heaven.—*Bertrand Russell, Education of Character*

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Notes on the Notable

FEDERAL PROGRAMS AND ACTIVITIES

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Project Social Studies: two deadlines

Project Social Studies in the Office of Education has two deadlines coming up in the next few months which will be of interest to colleges, universities, and State departments of education. December 1 is the deadline for filing proposals for research projects and for demonstrations of materials and techniques that have been found successful in teaching the social studies. March 1 is the deadline for filing proposals to establish research and development centers—a new kind of program this year.

Three other types of programs also may receive Federal support under Project Social Studies: Curriculum study centers, developmental activities, and small-scale research. (See *School Life*, July 1963.) For these there are no deadlines; applicants may submit proposals at any time.

College instructional staff: OE projections to 1970

By 1970, colleges and universities in the United States and outlying parts may need 433,000 instructional staff members for degree-credit courses, according to Office of Education projections. The projections are based on the assumption that 7 million persons will be enrolled in degree-credit courses in the fall of 1970 and that the ratio of students to staff members will be 14 to 1—it was 12 to 1 in 1959. These figures are reported in Circular 715 (OE–53018), *Instructional Staff in Institutions of Higher Education, Projected to 1970–71*, by Kenneth A. Simon, chief of OE's Reference, Estimates, and Projections Section. Copies are available from the U.S. Government Printing Office at 10 cents each.

Literacy commission sets up national headquarters

The National Commission for Adult Literacy, an arm of the Adult Education Association of the U.S.A., has set up national headquarters in Washington, D.C., and appointed an executive director. Although the commission was first organized in 1955, it has been operating only on a limited scale. With the establishment of national headquarters it can more fully perform its function—to stimulate appropriate action at local, State, and national levels to insure that every adult has the opportunity to acquire the basic skills of reading, writing, and arithmetic.

The commission was first organized by the late Ambrose Caliver, for many years chief of the Office of Education's Adult Education Branch. The commission is now composed of 36 distinguished U.S. citizens, including Senator J. William Fulbright and Roberta S. Church, consultant on aging to the Vocational Rehabilitation Administration. Edward W. Brice, Director of the Adult Education Branch in the Office of Education, is a consultant (without pay) to the commission.

The commission and the Office of Education complement each other in their work to wipe out illiteracy among 8 million adults in the United States. The commission will be particularly helpful to the Office in carrying out some of the responsibilities it has under the Manpower Development and Training Act. In many cases, before a man can be trained or retrained for a job, he must first acquire the fundamental skills.

Materials for adult education programs being collected

During the month of October the Division of Continuing Education and Cultural Affairs in the Office of Education sent out teams of specialists to communities throughout the United States to identify materials that have been or can be used as instructional materials in programs for uneducated or undereducated adults. The materials collected will be available in the Office of Education for reference and study. These teams visited public schools, reading centers, adult education councils, libraries, colleges and universities, and other civic and educational agencies.

To make the collection as nearly complete as possible, the Office asks the cooperation of *School Life* readers. Any person knowing of materials of this kind not yet reported to the Office will help the program by dropping a line to the Adult Education Branch (Office of Education, Department of Health, Education, and Welfare, Washington, D.C., 20202).

FDA publications available to teachers

The Food and Drug Administration of the U.S. Department of Health, Education, and Welfare has issued a series of free teaching aids and other educational material for use in secondary school classes in science, home economics, health education, and social studies, and in guidance. The material includes the following:

Four kits of 12–15 items each on (1) understanding the FDA, (2) food protection from FDA, (3) drug protection from FDA, and (4) careers in FDA;

A student manual, "First Facts About Drugs," which contains answers to questions on prescription drugs, over-the-counter drugs, and other topics related to drugs;

Four science projects based on methods used by FDA; and

A teaching unit, "Enriched Flour and Bread," for home economics or health classes explaining U.S. standards for flour and bakery products.

Additional student manuals and science projects, quarterly newsletters, and posters are now in preparation.

Single copies of each item are available to teachers on request from the Consumer Education Branch, Division of Public Information, Food and Drug Administration, U.S. Department of Health, Education, and Welfare, Washington, D.C., 20202. In addition, the Consumer Education Branch maintains a mailing list of teachers who have requested FDA material and will send new material automatically to those on the list.

Educators surveying schools at U.S. oversea posts

The National Education Association, under a contract with the Agency for International Development, is surveying educational facilities available to dependents of U.S. Government civilian employees in the Near East and South Asia. The results of the survey will be used to assist officials of the State Department, AID, and other U.S. agencies in 17 countries to assess school facilities and requirements at each post to assure adequate educational levels and to help these schools to improve their service as instruments of understanding between U.S. citizens and the foreign communities in which they live. The study follows authorization by the Congress, under the Foreign Assistance Act, of the expenditure of up to $1.5 million by AID to improve these schools.

Finis Engleman, retiring executive secretary of the American Association of School Administrators, is head of the survey team. The other four team members are from education and government. They will study schools in Greece, Turkey, Cyprus, Egypt, Syria, Lebanon, Israel, Jordan, Iraq, Saudi Arabia, Yemen, Iran, Afghanistan, Pakistan, India, Ceylon, and Nepal. The survey will probably be completed in mid-December. The contract cost is $23,000.

Educational barriers to economic security studied

The Social Security Administration, U.S. Department of Health, Education, and Welfare, is financing a study in large urban cities of the effect of students' dropping out of school on their earning a living. The study will be made by the Institute of Urban Studies, Teachers College, Columbia University, and directed by Robert A. Dentler, sociologist and executive officer of the institute.

The institute will investigate both the extent and the social and economic causes of students' dropping out of school in 150 large U.S. cities, compare cities with unusual dropout rates, and try to determine conditions under which better preventive programs can be developed to fit local conditions.

The completed study, entitled "Educational Barriers to Economic Security," should assist Federal, State, and local officials in planning programs for reducing dropout rates and dependency on welfare programs.

The institute, which Columbia established earlier this year, applies social-scientific theories and research to all aspects of urban education, but gives priority to educational problems in depressed areas.

Disabled peacetime veterans eligible for training

Nearly 100,000 peacetime veterans who have service-connected disabilities will benefit under the terms of a new peacetime vocational rehabilitation act, according to the Veterans' Administration. The new law provides for vocational rehabilitation training for disabled peacetime veterans as did the original vocational rehabilitation training act for wartime veterans. Eligible veterans include those who have sustained service-connected disabilities while in the Armed Forces between World War II and the Korean conflict and since February 1, 1955. They are entitled to as much as 4 years of training.

Inquiries about these benefits should be made to the Veterans' Administration.

Peace Corps volunteers for TV work in Colombia

Eighteen Peace Corps volunteers, together with 16 Colombians, are taking intensive training at the educational television station of the University of Nebraska to prepare them to take part in the operation of two television stations in Bogotá. The stations at which they will work plan to carry educational programs that should reach about 85 percent of Colombia's population through instructional programs during both day and night. The trainees are gaining practical experience in operating a closed-circuit Spanish-language station. Several volunteers are studying technical maintenance and servicing.

According to Sargent Shriver, Director of the Peace Corps, if the project is successful it may be duplicated in other areas where the Corps has programs.

High levels in the Army

The U.S. Army today has the highest educational level in its 188-year history, Gen. Earle G. Wheeler, Chief of Staff, told the American Legion at its national convention this fall. Ten years ago, he said, only 48 percent of the Army's enlisted men were high school graduates; today almost 75 percent are (the national average for men over 25 years old is 24.6 percent). Commissioned officers are at high levels too: about 91 percent of all second lieutenants and 70 percent of all Army officers have college degrees (the national average for men between 25 and 34 years is about 17 percent) and about 20 percent have done graduate study.

Gallaudet begins 100th year

Gallaudet College, the world's only college for the deaf, opened this year—its centennial year—with a recordbreaking enrollment of about 675 students. When it opened for the first time in September 1864, it had five students and six faculty members. Its present faculty numbers 110.

Gallaudet receives partial support from the U.S. Department of Health, Education, and Welfare. In addition, from time to time, it receives grants for research on the deaf from constituents of the Department, such as the Office of Vocational Rehabilitation and the Office of Education.

UNICEF greeting cards

Millions of children benefit from the millions of greeting cards sold each year by UNICEF. Profits from the sale of one 10-card box can protect 30 children from tuberculosis or cure 10 of yaws; from 2 boxes, can save 5 children from trachoma; from 10, can provide daily vitamins for 75 children for 1 month. Profits from the sale of cards in 1962 were enough to give 2.2 million children a daily cup of milk for 1 year.

The 1963 collection of cards contains works by famous artists, including Henry Moore, contributed without cost. In addition, designs from previous years by Miro, Chagall, and Picasso are still available.

Cards come with or without season's greetings in three languages for $1.25 or $2.50 a box. For a folder on the current selections write to the U.S. Committee for UNICEF, 331 East 38th Street, New York 16, N.Y.

AEC grants

THE ATOMIC ENERGY COMMISSION has made 85 educational assistance grants, totaling $825,535, to 84 colleges and universities. The grants will be used to purchase laboratory equipment and fabricate neutron sources for instruction in the nuclear aspects of engineering and the life and physical sciences. About half of the institutions have received grants for the first time. Awards were made on the basis of recommendations from committees of college and university faculty members.

The grants are divided into two categories: Physical sciences and engineering (57 grants to 46 institutions) and life sciences (28 grants to a like number of institutions).

These grants bring to $24.4 million the total assistance given 614 educational institutions for laboratory equipment for use in nuclear education since the program began in 1956.

For a list of the institutions receiving grants, request press release F–110 from the Atomic Energy Commission, Washington, D.C., 20545.

CSC films

TWO EDUCATIONAL films developed by the Civil Service Commission—"Act of Honor" and "The Highest Honor"—can be borrowed by schools for showing to students.

The first tells the story of the civil service from frontier days to the present. The second tells the story of six civil servants who received Presidential awards in 1962 (one is Dr. Frances O. Kelsey). They are recommended for use in civics classes and guidance programs.

Both can be borrowed without charge from the regional offices of the Civil Service Commission (Atlanta, Boston, Chicago, Dallas, Denver, New York, Philadelphia, San Francisco, Seattle, and St. Louis).

Booklet on clothing

CHILDREN, PARENTS, TEACHERS, and many other persons are likely to enjoy reading "The Wonderful World of Clothes," a 40-page booklet created by a national retail clothing chain in cooperation with the U.S. Committee for UNICEF. The booklet tells the story of the charm, origin, and tradition of clothing worn around the world, describes hundreds of clothing customs, and includes handsome illustrations. Both the dean of the Fashion Institute of Technology and the director of the Museum of the City of New York have endorsed the publication.

The booklet sells for 50 cents a copy. Profits go to UNICEF. The booklet may be ordered in any quantity by sending cash, check, or money order to this address: The Wonderful World of Clothes, Post Office Box 2600, New York 1, N.Y.

Between 1958–59 and 1962–63 colleges and universities increased their charges to students. The tuition and fees (median) charged to full-time undergraduates in 514 publicly supported and 851 privately supported colleges are shown below:

Type of institution	Public institution				Private institution	
	Resident student		Nonresident student [1]			
	1958–59	1962–63	1958–59	1962–63	1958–59	1962–63
Total	$134	$183	$338	$449	$534	$740
University	208	257	492	595	750	1,000
Liberal arts	143	181	336	458	543	788
Teachers	134	211	319	414	500	600
Technological	200	226	350	469	776	1,089
Junior college	84	109	217	280	392	526
Theological	.....	.....	.....	.....	290	397
Other professional	.....	.....	.....	.....	646	795

[1] Not a resident of State in which the college is located.

Source: Office of Education 1958–59 and 1962–63 surveys.

War orphans' training

Between 12,000 and 15,000 young men and women have applied for college training this fall under the 7-year-old war orphans' education program. Since the program began, about 56,000 young people have entered training.

The program is for the sons and daughters of veterans who died from disabilities or illness incurred in active military service. Eligible orphans must generally be from 18 to 23 years of age. One parent may still be alive and may have remarried. Applicants must have completed high school. They can follow college programs or take vocational courses for as much as 36 months of schooling.

Alliance for Progress: Report on programs for education

Argentina

A GRANT FROM THE Alliance for Progress will help Argentina to conduct research in physics and to train physicists. Under an agreement reached in June, Stanford University will send one faculty member to teach at the Argentine Institute of Physics for 1 year, and the institute will send four Argentine graduate students to study at Stanford. In addition, the grant will help Argentina to purchase special equipment and conduct research.

Brazil

Brazil's University of Rio Grande do Sul will expand its agricultural education programs with the assistance of a loan from the Alliance for Progress. Following the pattern of the U.S. land-grant college system, the university will further integrate teaching, research, and extension facilities, and will develop a graduate program in agriculture and rural social sciences, conduct economic research to guide State and Federal agencies, plan and develop a new 3,500-acre agricultural experimental farm, and provide for the training of specialists in and teachers of agriculture.

Colombia

The University of Minnesota, under an Alliance for Progress contract, will help Colombia establish a graduate program in economics, the first in the country, at the University of the Andes. Part of the project will be to help the university to develop a research program in the fields in which it lacks trained staff members but for which the country has a need.

Four economists from the University of Minnesota will work at the University of the Andes for about 3 years. Professors on short-term assignments will also go to Bogotá for conferences and seminars. Selected Colombians will study at the Minneapolis campus.

Nicaragua

THE AMERICAN SCHOOL in Managua, Nicaragua, will be expanded and improved under an Alliance for Progress program grant. At present, the school has an enrollment of over 500 students, 329 of whom are Nicaraguans. Although it is supported by student fees, it does not have sufficient resources to acquire more equipment and teachers. The grant will help the school to expand its facilities and to conduct a pilot program for attracting students from low-income families.

Action to prevent juvenile delinquency

The President's Committee on Juvenile Delinquency and Youth Crime, in a recent report to the Labor and Public Welfare Committee of the U.S. Senate, calls the community action that the Juvenile Delinquency and Youth Offense Control Act (P.L. 87–274) has stimulated the "first major effort to deal with delinquency." The act supports demonstration centers and training projects. The demonstration centers are designed to show what a community can do to combat juvenile delinquency; the training projects, which include training centers, curriculum development projects, and institutes, workshops, and seminars, are designed to provide more and better training for people who work with delinquents and potential delinquents.

Sixteen U.S. communities are planning demonstration projects through P.L. 87–274. In three cities—New York, Cleveland, and New Haven—projects are well along and these cities are now conducting large-scale action programs to deal with the problems of juvenile delinquency and to coordinate the activities of all agencies, both government and private, which affect the lives of children and young people. In other communities, action has started on some 70 programs that will be incorporated into large-scale demonstration projects.

The President's Committee pointed out that the three well-advanced demonstration projects have accomplished two essential objectives: They have developed organizations that are mobilizing all the resources of the community necessary to provide all young people with opportunities to develop into productive, self-sufficient citizens; and they have delineated the problems of young people and have pointed the way to programs that can solve these problems.

As of August 1963, about 3,575 people had received training under P.L. 87–274, including teachers, juvenile court judges, policemen, social workers, probation and parole officers, civic leaders, and parole board members. The Committee estimates that another 9,000 will benefit from training programs by July 1964 and that the total number of people receiving training through grants will probably total 17,752 by the end of fiscal year 1965. They will have received their training through 12 training centers, 27 curriculum development projects, and 25 workshops, institutes, and seminars now receiving grants. Training projects are being conducted by educational institutions, legal and law enforcement organizations and agencies, and other public and private agencies.

The Teaching of Foreign Languages Current Issues and the Future

WILMARTH STARR

For 5 days in May State foreign language supervisors and consultants met in the Office of Education to exchange ideas on problems and programs and to map out plans for the future. The participants represented every level of education, for in addition to the supervisors from State departments of education they included specialists from foreign language departments of colleges and universities, public schools, and the U.S. Office of Education.

The conferees considered in depth three areas: Articulation, the use of the language laboratory, and inservice education. Their ideas and conclusions and those of the guest speakers on these and relevant topics will be presented in the conference report now in preparation.

The conference was sponsored by the U.S. Office of Education and directed by Mary E. Hayes and Esther M. Eaton, foreign language specialists in the Instructional Programs Branch of the Office.

The guest speakers were Alfred S. Hayes, Center for Applied Linguistics; Edwin T. Cornelius, English Language Services; Patricia O'Connor, Brown University; A. Bruce Gaarder and D. Lee Hamiltion, U.S. Office of Education; and Wilmarth H. Starr, head, All-University Department of Romance and Slavic Languages and Literature, New York University, who delivered the keynote address. A condensation of Dr. Starr's address is presented below.

WE HAVE all been involved in an exciting revolution. It has often been called a "quiet" revolution. I have found it at times to be a noisy one, and I prefer to think of it as a dynamic one toward which we all have an equal responsibility.

Nearly everyone has had something to say about the revolution in foreign language teaching; and many have participated in it as reactionaries or proponents, registering attitudes ranging from apathy to fanaticism, from forbearance to zeal. Perhaps the people most satisfied with the changes in the teaching of foreign languages have been our students because for once large numbers of them have found new excitement and new success in learning a language.

World War II, as you know, demonstrated dramatically that although generations of Americans had had 2 or 3 years of French, Spanish, or German, far too few Americans were able to speak the languages they had studied. The realization of this fact generated acute criticism of the methods by which languages had been taught, particularly the grammar-translation method, which is now, as a consequence, thoroughly in disrepute. This is not, however, to say that the study of grammar or the function of translation is of no use *at the proper stage in the learning process.*

One basic issue, it seems to me, is this: Our purpose should not be to destroy grammatical and structural concepts, but rather to know what can be done with them, who should study them and when. The original error was in thinking that the teaching of grammar based on analysis of the written language could be of major use in developing control of speech. This type of fallacy is what has caused a number of generations to cope with such a sentence as the following:

> I would have placed the partially broken teacup on the back of the second shelf, had I not remembered that the mailman was about to come up on the porch to deliver a postage-due letter.

As for the reading skill, the laborious decoding of the foreign language into bad English at the rate of three or four pages a day produced no notable literacy in our students and no fluency at all. Even those teachers who somehow sensed that speech was an important dimension of a language and who consequently had their students read aloud did not realize that in building speech habits upon the stimulus of the visual or graphic image they were committing the psychological and pedagogical error of presenting the wrong stimulus to condition the right behavior.

In the early days of the current revolution, two ideas bolstered the new faith in spoken language orientation; one was that of the language laboratory and the other that of teaching foreign languages to all children, the younger the better. Both of these ideas seem to me to be pedagogically based largely on the assumption that imitation and repetition are essential to learning language effectively. But important questions need to be asked. Are imitation and repetition the most basic ones to learning language? Or are they concomitants of others even more basic such as step-increment learning, analytical power, reinforcement of successful response, avoidance of error, systematic conditioning of correct linguistic behavior? Do methods based mainly on imitation and repetition, which apply so well to the child, apply as well to the person who has reached the age of reason?

We have already made much progress toward what is surely the proper objective of reading and comprehending directly in the foreign language. Furthermore, some recent research in programed reading, which is in essence a new look at graded reading, promises a great deal in terms of pedagogical and psychological principles, but at the same time it raises

a question analogous to the one raised by strict observance of the audio-lingual emphasis, which I would characterize as the problem of the great leap. A question keeps arising, without satisfactory answer, about the speaking objective based upon dialogs and practice in pattern drills: How do we get from pattern drills to natural and spontaneous speech? And a question has already been raised about the carefully programed readings even before the new materials are available: How do we get from the prepared materials to the original forms as the great authors have produced them?

The question of leaps—or more exactly the manner of making them—from prepared and carefully structured habits to highly viable and spontaneous actions is an important current issue, although it has always been with us to some extent. I would therefore suggest that we do a lot of thinking about it as we move forward, simply to be sure that the highway leads on to our destination. So far we have perhaps been building the road a section at a time in the hope that it will lead us to the regions of natural speech and spontaneous reading of original materials. I do not think the trouble is with our basic engineering, although we may have to do some minor repairs and straighten out a few curves on the sections we have already built.

I TURN now to another basic issue. In recent years the leaders among language teachers have been joined by descriptive linguists. We who are primarily language and literature teachers have been listening to what the linguists are saying about the nature of language, and have gradually enlisted their support and given them ours. There is no doubt that a principal thesis underlying the studies of the descriptive linguists is the emphasis on the dominance of the sound system, on the spoken language. Another of their interests bears upon the analysis of language patterns and their adaptation to the learning process.

Their insight and findings have reinforced the new methodology *on a scientific basis.* This is causing a change in the preparation of the foreign language teacher—his training must now include a study of the principles of applied linguistics both as an addition to his own knowledge and as an aid to his methodology.

Another important study of concern to the language teacher is the field of culture about which we have been so uncertain, particularly as regards the gradual shift in emphasis away from the purely belletristic approach, which often was content with familiarizing the student with art and artifacts or amusing him with the quaint and picturesque. The Normandy apron and sabot approach to culture is gradually giving away to the anthropologist's approach to the study of culture, culture as behavior. This approach leads us directly again to the emphasis on speech as a primary, if not the most significant, key to the culture of another group, since it is through language that man universally expresses his relationship to his environment, his interpretation of it, and his notion of reality.

The basic assumption underlying the revolution within our profession is, I believe, the emphasis on the spoken word, the predominance of speech. It underlies the language teacher's experiments with methodology, his adaptation of electronic devices, his study of the nature of language, his view of culture, his insistence on expanding foreign language teaching to all our children.

Let me remind you now what we are up against at present in terms of our overall professional problem. We must find our way in a profession where grammarians argue with linguists, linguists argue with each other, literary historians ignore linguists, scholars pay little attention to how they teach, and teachers pay too little attention to scholarship; where secondary school teachers blame their troubles on college teachers, and college teachers blame the students' poor preparation on the secondary schools. We find here and there some schools with expensive laboratories which they are not using properly, some schools with a passion for introducing FLES classes with little thought of whether competent teachers are available, and with little planning for articulated programs. The major division is between the old and the new, which is intensified by the reluctance of some to depart from old ways and the almost fanatical enthusiasm of others for the new.

WELL, this is it. Don't be dismayed by the prospect. For us, it is our profession, our problem, and our responsibility. Let us see how we can get some cohesiveness out of the inconsistencies, for it seems to me that the chief difficulty facing us is the unwisdom of the either-or psychology. The real danger is the espousal of one emphasis, one idea, or one method to the exclusion or neglect of others.

The old line teacher says we are dehumanizing the teaching of languages, and we may, in our impatience, have thrown out the good with the bad. And it may be that in giving speaking a new importance and the first place in the chronology of acquiring language skill, we have temporarily paid less attention to reading and writing. If we had paid more attention to the whole complex that is language, we would have realized, for example, that if we need to know for speaking purposes that the feminine of certain classes of words is formed by the addition of a consonant sound we also need to know for writing purposes that *e* is added. Grammar is one of the arbitrary systems by which language can be analyzed, and knowledge of grammar will illuminate learning at the right time and at the right stage. Our function is to know how and when to use grammar so that it illuminates rather than hinders. We need to be both linguists and grammarians.

I hear people defend the no-use of English, the occasional use of English, and the diminishing use of English, always to the exclusion of the other point of view as though they were defending dogma or revelation. We

need to understand that in teaching foreign languages in this country we start with students who already control one form of symbolic logic which relates them to environment, experience, and life. This is the English language. We need to be linguists, psycholinguists, and semanticists to sort this one out. We must *know* when the use of English helps and when it hinders.

In the study and teaching of culture, we cannot afford to become so interested in the way a Frenchman uses his fork that we pay no attention to what he paints or writes, for although his daily behavior is important to our understanding of him, so are those great moments of his art and music and literature when he records, again through symbolic manifestation, his view of man and the universe. We must be both anthropologists and humanists to do this job. And this brings me again to the future, and incidentally to you, for if I am right in asserting that our greatest concern is a sense of overall responsibility to our profession, then you as supervisors and consultants are by definition the people who will help map out the guidelines.

In search of a cohesive synthesis that attempts to explain both our current problems and our future tasks, I have invited you to think in terms of larger and larger horizons. The magnitude of our task is inherent in the profession that we have elected. We must not fail to take a large enough view of our profession and to understand how large and significant an area it covers.

We must realize that in dealing with language we are working with the manifestation that most distinguishes man from all other creatures, his codification of experience into symbolic expression. At this point I must recognize—and for this I do not apologize —the need to consider the philosophic implications of language.

Since the 17th century man has chiefly bent his efforts to knowing the meaning of the world and of life through the manipulation and interpretation of sense-data. But for an even longer time man's basic human need has been to understand experience and knowledge through symbolic manifestation. This human need lies beneath ritual, myth, religion, art, literature, and language. And it is in language that man has built the most complex, the most distinguishing, and the most nearly universal of his symbolic systems of interpreting his experience, and for recording, understanding, and communicating it. Or as Susanne Langer has put it in *Philosophy in a New Key:*

> Not higher sensitivity, not longer memory or even quicker association sets man so far above the other animals that he can regard them as denizens of a lower world; no, it is the power of using symbols—the power of speech that makes him lord of the earth.

These are the reasons why our task is so large, why we cannot expect to solve our problems through emphasis on any single component of language. In addition to being grammarians, linguists, anthropologists, psychologists, literary scholars, semanticists, I invite you to become philosophers. I do not see that we can be any less if language is the common resource of man and his most useful tool in comprehending the stuff of life.

Whatever point of view we have taken, the historical and the contemporary, the linguistic and the cultural, the pedagogical and the philosophical, the importance of speech may safely be considered our basic assumption as we move into the future. But we should not allow ourselves to underestimate the importance of language as it is recorded in its written form or to confuse the two.

I propose that we take the largest possible view of the nature of language as symbolic reasoning, that we recognize this manifestation as an all-embracing human need that distinguishes us as well as confuses us, and one that cuts across all realms of experience and all disciplines. With such a view of our task we should more readily accept the findings of the specialist, relate his contributions to our purposes, and be less prone to think that the answer is either this way or that way when it may well be a combination of both ways or many ways.

I think there is logic behind a synthesis of the findings of the language man and the literature man, the methodologist and the linguist, between the humanistic approach to culture and the anthropological approach. As the overall synthesizing agent I have proposed the philosophical view of language as symbolic reasoning and as such, drawing as it does on all the specialized aspects of language, a view which provides us with our direction into the future.

The view that I have outlined is a scholarly view which allows us to see FLES and secondary school and college teaching in perspective as parts of a process. It is a view which allows for the contribution of the specialists who approach the problem from many angles; it is one that does not allow for the prejudging of a new idea, whether it be teaching by television or by programed learning, before the experiment has been made or before the data are in.

IN CONCLUDING I would venture a prediction. The audiolingual emphasis and the language laboratory are here to stay, although both will inevitably be modified. With respect to the former, reading and writing will regain their importance although these skills will be built on prior training in listening and speaking. The rules and techniques of audiolingual training will become less rigid; educated use of English will be allowed but will be based on sound linguistic principles. With respect to the language laboratory, the student positions will become more individualized to allow for self-pacing and portable to allow for flexibility in the use of time and space; there will be less mass and lockstep broadcasting except for testing; less attention will be paid to the gleaming chrome and varnish. Articulated 6- and 10-year sequences will mean that by the time they go to col-

lege students have reasonable control of skill in at least one foreign language and the more linguistically apt may have started a second.

Through inservice training and the efforts of dedicated people, an ever-increasing number of foreign language teachers will possess near-native control of the spoken language, assume that oral communication is a primary but not an exclusive target, know that there is a methodology in teaching foreign languages but that there is more than one method, and understand that electronic devices are useful tools and that programing of laboratory materials is more important than the appearance of the equipment. Such a teacher will be a serious open-minded student of language and will keep abreast of current professional research. He will have had experience with inservice training programs such as a summer foreign language institute, either as a staff member or as a participant. He will be acquainted with the contributions of such groups as the Northeast Conference on the Teaching of Foreign Languages and the foreign language program of the Modern Language Association. He will be active in State, regional, and national professional organizations. He will have spent some time in the country whose language he is teaching. He will understand the principles of applied linguistics, he will be concerned with the anthropological approach to culture. Most important of all, such a teacher will consider the learning and teaching of foreign languages to be a process and a profession from the elementary grades to the Ph. D.

This is indeed a sobering responsibility, but language teachers will not take it lightly, I am sure, for language in the total sense is a most precious part of the human experience. Let me close with another quotation from *Philosophy in a New Key:*

> Words are certainly our most important instruments of expression, our most characteristic, universal, and enviable tools in the conduct of life. Speech is the mark of humanity. It is the normal terminus of thought.

Teaching Machines and the Mentally Retarded

LEONARD S. BLACKMAN

TEACHING MACHINES have certain characteristics that appear to be particularly suited to the needs of the retarded child. They require active participation by the pupil, immediately reward a correct response, and present material in an optimal sequential order in finely graded steps to insure the mastery of old material before moving on to new. Programed instruction, in general, seems to be the most direct and controlled application of the principles of learning theories to instructional techniques. We know that mentally retarded children make slow progress under standard classroom conditions and that they often place enormous demands, both in time and temperament, on the teacher. A self-instructional device gives immediate feedback, is infinitely patient, manifests no rancor when a child responds incorrectly, and consistently reinforces the child when he responds appropriately. It furnishes an impersonal learning environment unlikely to arouse anxieties associated with past teacher-pupil relations.

With these facts in mind, and encouraged by reports of significant educational progress by normal pupils using self-instructional devices, the Edward R. Johnstone Training and Research Center (a State institution for educable mentally retarded children and adolescents in Bordentown, N.J.) and Trenton State College contracted with the Office of Education, through title VII of the National Defense Education Act, to conduct a research project on the use of self-instructional devices in teaching reading and arithmetic skills to the mentally retarded. The project began in June 1960; a final report is now in preparation.

Dr. Blackman is associate professor of education at Teachers College, Columbia University. He was formerly director of research at the Edward R. Johnstone Training and Research Center, Bordentown, N.J. He and Marshall P. Smith of Trenton State College were principal investigators of the project described in this article.

The objectives of the project include these:

1. To develop and program teaching machines for instructing mentally retarded children in primary language and arithmetic skills.
2. To carry out a series of studies to resolve methodological questions about the most effective ways of constructing such programs.
3. To compare the achievement of groups of mentally retarded children using teaching machines and programs to that of equated groups being taught the same material by traditional (for retarded children) classroom techniques.

During the first 2 years of the project we developed the teaching device, completed several research studies to provide guidelines as to the most effective ways of displaying materials and writing programs, and developed programed materials for about two grades in reading and arithmetic.

We quickly concluded that the only practical vehicle for program presentation for the project would be a multiple-choice, button-press machine with both visual and audio displays. Obviously, a machine with only a visual display requiring a reading of instructions and program frames would be inappropriate for teaching reading

to the children who would take part in the study, most of whom could not read. Nor could these children use a machire requiring a written response since they could not write.

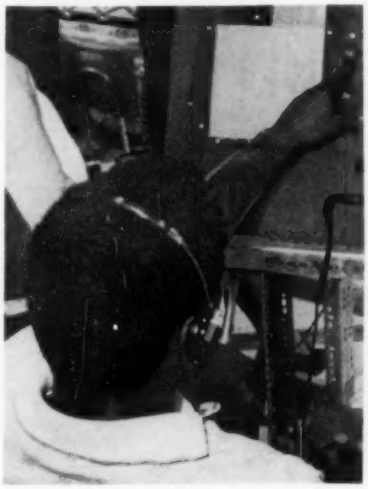
A machine meeting our requirements was designed and constructed by Bionics Instruments of Bala Cynwyd, Pa. The programed material to be used with it was prepared in film and tape form. The film is projected on a screen from within the console with alternative answers to each frame lined up next to the four buttons arranged in vertical order along the right margin of the screen. The audio portions of each frame are presented through earphones worn by the pupil. After each frame is presented, the pupil indicates his understanding of the frame by pressing one of the four buttons. If he presses the correct button, a green light appears above the viewing screen and the filmstrip progresses to the next frame. If he presses the button for an incorrect response, a red light appears and the film remains stationary until the correct button is pressed. The device can be modified to provide tangible rewards for each correct response.

To develop guides for program development, we conducted a number of studies to investigate different types of display conditions, various techniques for providing support or prompts to facilitate correct responses, and alternative methods of writing phonics programs. A team of methods specialists in reading and arithmetic wrote programs from the very general and often inadequate guides to program writing developed by these studies. In reading, the team wrote over 200 separate programs with over 7,500 frames and covered such primary skills as word recognition, sentence recognition and comprehension, phonics, and story comprehension. In arithmetic, they wrote over 175 programs with about 6,000 frames on rational counting, simple addition, subtraction, multiplication, division, and simple fractions.

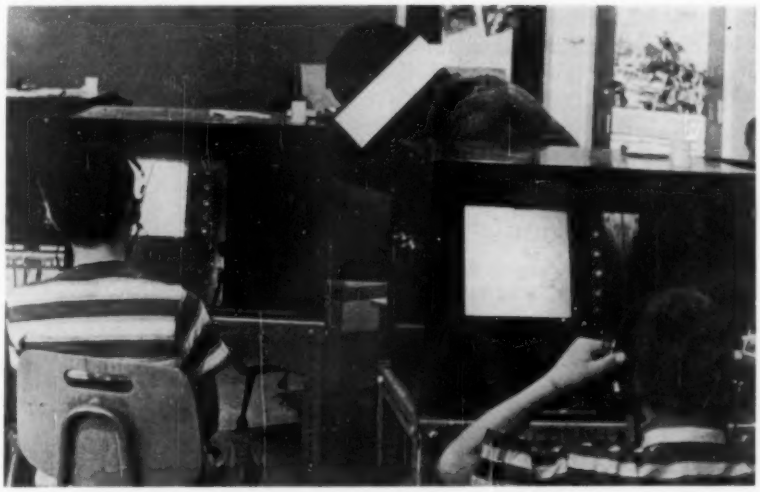
In September 1962, the machines being ready and most of the programs prepared, we began the classroom evaluation phase of the project. Forty mentally retarded children from 10 to 15 years old with IQ's of 45 to 75 were assigned to 2 experimental groups (with teaching machines) of 10 children each and two control groups (without teaching machines) of 10 children each. One pair of experimental and control groups consisted of younger children; the other, older children. Groups were roughly equated for IQ's and initial achievement scores in reading and arithmetic. Since all groups were in the academic program for only half a day, two qualified teachers were assigned to the project. Each teacher taught one experimental and one control group. To try to eliminate teacher differences, they exchanged classes at the start of the second semester. All groups were taught the same material at roughly the same rate.

At the beginning of the term, all pupils were pretested with two standardized achievement tests and one homemade achievement test based directly on the programs. In addition, behavior ratings both in and out of the classroom were obtained for all pupils so that the study could determine whether programed instruction might have some effect on behavior.

Five teaching machines were available for use by the children in both experimental classes. Each child about to use a machine was pretested by the teacher on the content of the program. After going through the program, the child returned to the teacher for an immediate posttest on the content to which he had just been exposed. Typically, each child went



One of the pupils who took part in the experiment presses a button on a specially designed machine to indicate his reply.



When the bookkeeping work proved almost too much work for the teachers, the experimenters assigned older, more competent pupils to care for the machines. Here, a pupil is adjusting a machine.

through two programs (about 20 minutes each) each schoolday. At the end of the week, the teachers tested the children on all the material covered that week. At the close of the school year, the children were again tested on the instruments with which they had been tested at the beginning.

The bookkeeping involved in testing each child before and after machine exposure and the work of changing filmstrips and tape reels on five machines presented almost impossible management problems to the teachers. For this reason, each teacher was assigned two older, more competent pupils with responsibility for the care and maintenance of the machines. This arrangement proved to be very satisfactory.

Although the analysis of data is not yet complete, the most important preliminary finding seems to be that the experimental groups made significantly greater progress than the control groups in arithmetic achievement and deportment, both in and out of school. No differences, however, were found between the groups in reading.

In addition to the objective data that this study is expected to provide on the effectiveness of programed instruction with the mentally retarded, a number of other major contributions seem to be forthcoming. These include—

1. The acquisition of technical "know-how" in the development of audiovisual devices designed to teach mentally retarded children who bring few or no skills to their learning tasks.
2. An understanding of the logistical problems involved in the preparation, storage, and distribution of program films and tapes.
3. The resolution of management problems relating to the use and integration of teaching machines into the classroom routine.
4. A library of reading and arithmetic programs covering approximately grades one and two.

There seems to be little question that significant information will come from this study on the value and deficiencies of a particular type of programed instruction for the mentally retarded child. We have already obtained useful information from reviewing the project as it progressed from a crude idea of applying some type of teaching machine and program to the education of the mentally retarded to the completion of five sophisticated electronic devices, thousands of program frames, several backup research studies, and a major classroom evaluation. But, the many psychologists and educators who contributed to this project agree that it must be considered an exploratory effort only. Many, many questions remain to be answered on the techniques of constructing programs, particularly in teaching the complex process called reading, that are specifically relevant to the special learning abilities and disabilities of mentally retarded children.

The Edward R. Johnstone Training and Research Center and Trenton State College are now preparing the final report on the project, to be called "The Development and Evaluation of a Curriculum for Educable Mental Retardates Utilizing Self-Instructional Devices or 'Teaching Machines'." In addition, "Light From a Black Box," a film depicting research in programed instruction with the mentally retarded at the Center, the University of Illinois, and Harvard University is in production. It will be available for distribution this winter.

Education for an Expanded Export Trade

The White House Conference on Export Expansion, held in Washington, D.C., in mid-September, represented one effort by the United States to help—in the words of President Kennedy—"balance our accounts with other nations and to strengthen the dollar as the principal reserve currency of the world." More than 200 of the Nation's top executives attended and discussed such topics as tax policies and export expansion, labor and export expansion, trade promotion, foreign investment policy, financing exports, and educational requirements.

The position paper on distributive education in export trade expansion presented to the conference for consideration was prepared by specialists in the Office of Education, headed by John A. Beaumont, director of the Distributive Education Branch. The paper reported on activites to date to promote education for export trade and presented a plan for a 2-year export technician training program.

The Distributive Education Branch, as reported in the paper, has conducted 18 experimental instructional programs in export trade activities in 13 centers for about 670 people, with the assistance and encouragement of the Regional Export Expansion Council of the U.S. Department of Commerce. Some of the initial programs have been repeated for the second and third time. Plans are underway to develop specific courses dealing with one or two of the problems of export trade covered in a general way in present courses. Plans are also being made to develop junior college type instruction to provide technicians who will be needed in the expanding export field.

The State of Florida has developed an outstanding export trade education program. The curriculum for the program was developed by Willem Winkel, an expert on foreign trade. To make this material available to other States, the Office of Education, with the permission of Florida, has published it as a Vocational Division Bulletin. The publication, *Planning and Organizing an Export Trade Education Program* (OE–82012), can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, for 20 cents a copy.

AD Minutes Briefly noted--- for the busy School Administrator

Material for this department is prepared by the staff of the School Administration Branch, Division of Elementary and Secondary Education

Any North Carolina citizen willing to take a little time can easily make his own evaluation of his local schools and community by taking a QEQ Quality Education Quotient test—which was developed and has been made available by the North Carolina Citizens Committee for Better Schools. The test is made up of statements that reflect the standards that local schools and communities should meet. There are 90 statements in all, 10 statements under each of these 9 section heads: Community climate, role of the school, local school government, organization and administration, school staff, curriculum, instructional program, pupil personnel services, and school plant and facilities. The last section of the test is a one-page scorecard, called a Profile of Quality.

When a person has completed all sections, he transfers his scores to the scorecard and takes an average. The result is a profile of quality, a comprehensive picture of how his school and community measure up to the QEQ standard.

The Acalanes High School District of Lafayette, Calif., is holding a series of Kaffeeklatsches again this year, the third year in a row. District officials have found that these informal discussion meetings benefit all concerned: The parents and other citizens who attend gain greater understanding of their schools, which tends to increase their support; administrators are encouraged, they themselves say, to be well informed on all phases of the schools' program and operation; and teachers and other professional staff members are more ready to examine proposed changes in school programs and services.

The meetings are held in the 5 operating high schools in the district.

During the first 9 months of operation of Connecticut's Loan Plan for College Students, 501 students received a total of $259,627. The average individual loan was $578. The loan plan was created by the State legislature and is operated by the Connecticut Higher Education Assistance Corporation. Under the plan, Connecticut residents who are in their second year or beyond at any accredited college in the United States may borrow up to $1,000 a year for 3 years.

Nine State departments of education are cooperating with the Civic Education Center, Tufts University, in a citizenship project. Since 1960 the project has been encouraging high schools in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont to carry on activities that give students opportunities to learn about the responsibilities and satisfaction of true citizenship.

Many high schools have responded to the encouragement by conducting such programs as the following: Voter registration campaigns, State and local election campaigns, a presidential election program, a radio series on careers, a model U.N. assembly, and a clothing and toy drive.

The chief State school officers have sponsored workshops, publications, and teacher inservice programs to help make the project successful.

"School facilities should be planned and designed to accommodate predetermined educational programs. Comprehensive planning should be done without haste or waste," Charles Carroll, North Carolina Superintendent of Public Instruction, says in *A Digest of Educational Planning*, published by his department.

The *Digest* is a guide for local school officials to the kind of planning Mr. Carroll describes. It outlines a three-step program, covering a 3-year period, for identifying and analyzing the educational needs for facilities, initiating a program to improve the school plant, and completing and evaluating the planning program.

A cooperative schoolhousing project is being undertaken that will bring cross-cultural insight into the planning of educational facilities. The Institute of Pedagogy, University of Florence, Italy, is conducting a study of the relationship between the design of school buildings and community educational-recreational programs. The College of Education, Michigan State University, is conducting a comparable study in a Michigan community. The results of the project should contribute ideas with an international dimension to the planning of school plants.

Change is taking place in public school finance just as it is in biology and physics and almost every other subject we can name; and the professors of school finance find that the time has come to make large additions to one of their favorite text and resource books, *Problems and Issues*

in Public School Finance, published in 1952. They are making them in the form of a whole new book which they themselves will write; it will be used as a sequel to *Problems and Issues*.

Chapter topics have been assigned to 20 or more professors, and further progress was made on the book when the Conference of Professors of Educational Administration met in Albuquerque in August.

Members of the Study Commission of the Council of Chief State School Officers met in Hartford, Conn., October 27 to November 1, in their 15th annual workshop. Like the earlier workshops, this one dealt in general with ways of improving State departments of education, but various committee work groups considered specific subjects such as State departments' need for research, new educational media, mental health, and State-Federal relations. Office of Education staff members served the commission and its committees as advisers.

The study commission is made up of a representative from each State department of education who is appointed by his chief State school officer. Members determine the projects to be undertaken and, with the help of specialists, develop status studies. Some of their studies are adopted by the council as policy statements. So far in 1963 the council has published two statements: *State Department of Education Leadership Through Research and the State Department of Education: Legal Status, Functions and Organization*. Edgar Fuller is executive secretary of the council; his headquarters are at 1201 16th St. NW., Washington, D.C.

***California Education*, the new** professional journal of the State department of education, takes the place of the *California Journal of Elementary* and *Secondary Education* and *California Schools*. The new journal will report on all segments of the State's public school system, educational research, meetings and conferences, and new regulations and actions of the State legislature affecting education.

Columbus, Ohio, citizens have had ample opportunity to become familiar with the programs, services, and financial needs of their schools. Before school opened this fall, citizens were invited to take part in an informative discussion program held one evening a week for 3 successive weeks at Columbus' 138 public schools.

The programs—they were in fact neighborhood seminars—were cooperatively planned by a citywide citizens committee, school officials, and school board members, and were organized by the city school system. Although the groups were encouraged to follow the study guide the school staff had prepared, there was room and time for free discussion at each session.

Before the sessions ended all 138 groups drew up recommendations which their chairmen turned over to the citizens committee.

On all sides there is increasing interest in educational data processing. As evidence of such interest, we cite these facts:

- At least 17 universities—double the number of a year ago—are offering EDP graduate courses, especially for school administrators.
- Many colleges and universities held summer workshops in which they offered basic instruction in how to use automatic data processing to advantage. Other colleges—the Illinois State University, Normal, Ill., and Michigan State University, East Lansing, for example—included EDP courses in their workshops for school business officials.
- Approximately 200 superintendents, principals, and business officers of local schools and presidents, registrars, and business administrators of colleges attended the Wisconsin Institute on Data Processing in Education at the University of Wisconsin in August. The institute was sponsored by the University of Wisconsin, the Wisconsin State Department of Education, and State colleges.
- School administrators are having to staff their high schools for courses in data processing and the use of electronic equipment. Many schools are adding computer courses in their science and mathematics curriculums. Business and vocational education students are learning how to operate simple types of electronic equipment. And all of these must have teachers who understand the basic concepts of data processing and have been trained in the use of such equipment.
- More than 100 persons took part in the program on potential uses of EDP at the 1963 convention of the American Association of School Administrators.
- The Council of Chief State School Officers has formed a committee on educational data systems.
- All but two State departments of education now have some type of automatic data-processing installations. The National Defense Education Act (Title X), which makes Federal funds available to the States on a matching basis for improving statistical services, is responsible for much of the expansion in the State departments.
- The Association of Educational Data Systems, organized just a year ago, already has 450 members and has held its first national convention. Members keep up with the latest news on data processing through the monthly AEDS *Bulletin*.

Portland (Oregon) schools are making Fiberglas fixtures such as drinking fountains, sinks, and laboratory tanks in the school maintenance shops and, school officials report, saving thousands of dollars in the process. Fiberglas wears well as it does not chip or crack. The shops started making replacements from original patterns when equipment was brought in for repair.

USOE Cooperative Research

FRANCIS A. J. IANNI

WHEN we started the cooperative research program in the Office of Education, our major concern was with basic research projects. It soon became apparent, however, that despite the impressive accumulation of research findings, the fruits of this research were all too often not to be found in the classroom. We therefore began to take a close look at the traditional research "project" method. It was soon apparent, too, that the fault was not in the project method, for this method has served educational research well as a means of establishing a firm base for the development of techniques.

But the project method has proved most valuable in basic research where the investigator has a particular hypothesis or a series of hypotheses which he wishes to test. Research in the physical sciences, the behavioral sciences, and medicine—all of which have gone further along in the improvement of research techniques than education has—has shown that the project method loses its utility when it is applied to major problems.

The project method is essentially a technique for solving a discrete problem within a relatively narrow area of interest. In medical research, for example, the project method is used to identify a particular strain of virus; in educational research, to determine the effects of various forms of discipline on a student's behavior. In both cases the investigator examines the interaction of variables under controlled conditions—the medical researcher in the laboratory, the educational researcher in an experimental classroom. Because of the controls necessary to basic research, the investigator cannot know how the variables will operate outside the laboratory or classroom unless his findings are field tested in a variety of situations. And after field testing, his findings must be demonstrated and eventually disseminated before they can influence practice.

In education both demonstration and dissemination of research findings are clearly necessary, for despite all that research has discovered about learning theory and teaching, the teaching-learning process has remained largely unchanged except for minor refinements—usually reinforcements of existing methods—and the chronological lockstep from kindergarten to college has remained almost unbroken over the years. Despite its value in educational research, the project method does not result in changes in the classroom. If the lockstep is to be broken, if educational technology is to be improved, teachers must know what research has found and be convinced that the changes the findings lead to will benefit their pupils. Obviously more is needed than the project method.

To help fill the need, OE's Cooperative Research Branch has revised its program and is taking a "programmatic" approach to research. The new approach calls for four steps: Research development, basic and applied research, curriculum development and demonstration. The success of this approach has already been shown in Project English (one phase of the cooperative research program), where all steps are being taken.

IN PROJECT ENGLISH the first move under step 1 was to determine what research had to be developed and carried out to improve the teaching of English at all levels. For this information we turned to experts in the teaching and use of English. We began by going directly to the leaders of the profession—in three conferences:

- In May 1962, in Pittsburgh, with elementary and secondary and college teachers, librarians, school administrators, psychologists, and representatives of State departments of education on the research needed in the teaching of English. Excerpts from the conference report have appeared in professional journals and the complete report is now available (*Needed Research in the Teaching of English*, OE–30010, Washington, U.S. Government Printing Office, 1963, 55 cents).
- In May 1962, Washington, with teachers and supervisors from large cities on teaching English to culturally deprived children. A monograph on the conference is being prepared.
- In November 1962, in Washington, with elementary teachers on teaching reading to young children.

To get more detailed and specific information than we could get in conferences, we have made contracts with specialists for a number of studies:

- A study of what is known about the teaching of composition—an analytical summary of research.
- A special study of the implications, as far as English is concerned, of Project Talent (a major study of the characteristics and knowledge of 440,000 high school students from all parts of the country).
- A linguistic analysis of a large body of modern prose; the prose will be placed on tapes and analyzed by computers.
- A study, made in cooperation with the Commission on English of the College Entrance Examination Board, of the Commission's summer institutes so that directors of any future institutes may profit from earlier experience.

THE DEVELOPMENT ACTIVITIES under step 1 prepared us to take step 2—to authorize new and critically needed basic and applied research in the language arts. The first 30 basic and applied research studies to get under way do not fall very neatly into categories, but the following rough breakdown shows the direction they are

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taking: Reading, 6; college freshman composition, 5; linguistics, 5; high school composition, 4; spelling, 2; elementary composition, the high school curriculum and speech, 1 each; and 5 are miscellaneous or cut across lines. But, as I said earlier, research is effective only if it leads to beneficial changes in the schools, and one of the most important needs research has uncovered is for new curriculum materials. In an effort to fill this need, we have taken step 3—we have established a number of curriculum study centers to produce new curriculums. Each center is supported by about a quarter of a million dollars in Federal funds and institutional funds in various amounts.

Each center will, over a period of about 5 years, develop and test a sequential curriculum for specified grades and with particular emphasis. Together they will cover all grades, K–14, and develop several curriculums: For example, the center at Carnegie Institute of Technology will develop a curriculum in English for able college-bound students in grades 10, 11, and 12; the Hunter College center, an English curriculum for culturally deprived students in junior high school years; the Minnesota center, a linguistics program in the high school; the Nebraska center, the most ambitious one in scope, a curriculum for grades K–13, with particular emphasis on composition and rhetoric for grades 7–14; the Oregon center, a well-balanced program in English for the high school years.

WE ARE just now taking the fourth and final step in the new program: we are setting up a number of centers to demonstrate materials and techniques. One of the first is at the Euclid Central Junior High School in Cleveland, Ohio. It is operated jointly by the school and Western Reserve University and will demonstrate new methods of teaching junior high school English.

Although the center was planned to present demonstrations to about 25 teachers in the Cleveland area, it has already received applications from more than 120 teachers, school administrators, and curriculum supervisors, some from as far away as St. Paul, Minn.

THIS NEW PROGRAMMATIC APPROACH promises to reduce the lag between research and practice in English. We believe it will be just as effective in other subjects.

Health Professions Assistance Act

On September 24 President Kennedy signed into law the Health Professions Educational Assistance Act of 1963, Public Law 88–129. The major purpose of the act is "to increase the opportunities for training of physicians, dentists, and professional public health personnel."

The act authorizes a 3-year program of grants for the construction of teaching facilities for the health professions and loans to medical, dental, and osteopathic students. It also authorizes the appropriation of $175 million in grants for the construction of teaching facilities and $30.7 million for student loans.

Construction of teaching facilities.—For fiscal year 1964 P.L. 88–129 authorizes the appropriation of up to $15 million in matching grants for the construction of new teaching facilities for the training of physicians, pharmacists, optometrists, podiatrists, nurses, and professional public health workers; $5 million in grants for the construction of new teaching facilities for the training of dentists; and $5 million to replace or rehabilitate teaching facilities. Under this section the Surgeon General may make grants (1) of up to two-thirds for the cost of construction of new facilities and the major expansion of existing facilities, (2) up to one-half for the expansion of schools which will increase their first-year enrollments by at least 5 percent (not less than 5 students, whichever is larger), and (3) up to three-fourths for the construction of schools of public health. He is authorized to transfer funds from one construction category to another as necessary.

In carrying out this part of the act the Surgeon General is instructed to obtain the advice of a National Advisory Council on Education for Health Professions, which the act establishes. The Commissioner of Education will be an *ex officio* member. Four of the 16 appointed members will be selected from the general public and 12 from among leading authorities in the fields of higher education, at least eight of whom should be concerned with training in medicine, dentistry, osteopathy, pharmacy, optometry, podiatry, nursing, or the public health professions.

Student loans.—P.L. 88–129 authorizes the Secretary of Health, Education, and Welfare to enter into an agreement for the establishment and operation of a student loan fund with any public or other nonprofit school of medicine, osteopathy, or dentistry. Loans can be made only to students following a full-time course of study at the school leading to a degree as doctor of medicine, doctor of dentistry or an equivalent degree, or doctor of osteopathy. Students may not receive loans under both P.L. 88–129 and the National Defense Education Act. Loans will not exceed $2,000 to any one student for an academic year. Loans will be repayable over a 10-year period beginning 3 years after recipient has ceased to pursue a full-time course of study. All periods (up to 3 years) of active duty in the armed forces or with the Peace Corps shall be excluded from such 10-year period. The act authorizes the appropriation of $5.1 million for fiscal year 1964, $10.2 million for 1965, $15.4 million for 1966, and such sums for 1967 and each of the two succeeding fiscal years as may be necessary to enable students who have received loans for any academic year ending before July 1, 1966, to continue or complete their education.

The Education of Women

On October 11, 1963, the birthday of Mrs. Franklin D. Roosevelt, who had been its Chairman, the President's Commission on the Status of Women submitted its report to President Kennedy. The following statement is an adaptation of part of that report, the part entitled "Education and Counseling."

We have given great weight to the educational needs of mature women, but nothing we can recommend to meet the needs of women is of more importance than improvement in the early education of all of the Nation's children. Good basic instruction must be within the reach of all children from the time they start school.

We wholeheartedly advocate measures, undertaken by localities, by States, and, when needed, by the Federal Congress, to provide financial support for the improvement of education through better plant and equipment, teacher training, increased salaries for teachers, experiment and research on curriculums and teaching methods, counseling, and better vocational programs.

We likewise support the expansion, in both numbers and scope, of private and Federal and other public scholarship and loan programs.

But improvement in American education as it is, is not enough. Its framework must be enlarged to include adult education. In its widest context, adult education is already a major undertaking, engaging some 82,000 teachers and administrators and involving from 30 to 40 million students. Between 2½ and 3 million adults are in formal courses. But education is too often thought of as only a diversion on the fringes of adult life. So far, adult education has not received the attention it merits in a rapidly moving industrial society.

For women, as for men, adult education is the means by which the new range of vocational opportunities is opened to them; adult education that serves this purpose must have counseling at its center. In an evolving culture, education and vocation are inextricably combined. Each contributes to the other to an extent only slowly being understood. The proportion of time that a person gives to education in any given part of his life depends on many factors, among them age, capacity, and current responsibilities. But he must have at hand flexible opportunities to pursue his lines of interest to higher levels, or to branch out into new lines.

Education for the Mature Woman

Men and women are equally in need of continuing their education, but at present women's opportunities are more limited than men's. Women have little access to the advanced training programs provided by businesses for their executives or to the educational and training programs of the armed services. Women, moreover, have less access than men to the counseling and training programs available to persons whose vocational lives follow continuous patterns.

The woman who marries and is raising a family has urgent educational needs that so far have been neglected. She needs to continue her education in one form or another to give her children and husband the assistance, companionship, and stimulation they need from her. And she needs to prepare herself for at least three decades of life after 40 when she will be relatively free to use her abilities as constructively as possible and in interesting ways.

Different women require different levels of education.

Many mature women—4 million in 1960—have had less than 5 years of schooling. They live in a society where literacy is essential, yet they cannot follow a simple written instruction or fill out a simple form. In a time when automation is displacing workers far better qualified than they, their chances in the job market are slim indeed. These women, particularly mothers with growing children, need help to overcome their handicaps.

Over 11½ million other adult women have an educational handicap almost as serious. They are the ones who entered high school but failed to finish; they make up more than half of all women of 25 and over. If they could now complete their high school work, they would have a chance to lift themselves out of the congested competition for unskilled jobs.

Most single women work for a large part of their lives, and many married women and young widows in low-income families work outside the home even when they have young children. In 1963, more than half of all women in the 45-to-54-year age bracket were in paid employment. In the schools and out, a realistic, many-sided vocational program could prepare women for entering or returning to the labor market. It would reduce their inclination to take the first job that comes along and remain in it, even though their capabilities may be well above the level of competence which the job requires. Technical training for clerical, manual, and other skills is especially important to women of minority groups. During their school years they were not trained for fields that are now opening to them.

Until recently, more young women than young men stayed in school up to the college level. In 1962, the median number of years of school completed by women 25 years old and over was 12, as against 11.6 for men. In 1962 there were 872,000 boys and 966,000 girls in the Nation's high school graduating classes.

But once the college level is reached, the girls begin to fall behind. The 1962 college enrollment included 437,000 women, about 42

percent of the entering class. Women are earning only 1 in 3 of the bachelor's and master's degrees, and only 1 in 10 of the doctor's. Today's ratios, moreover, represent a loss of ground from the 1930's, when 4 out of 10 bachelor's and master's and 1 out of 7 doctor's degrees were earned by women.

If colleges and universities are to offer higher education in the form in which mature women with family responsibilities can take advantage of it, they must make some changes.

To be usable by the many young women who marry in their late teens and early twenties, and by mature women in general, continuing education must be available where the woman is. If she leaves school or college to marry, she may never return if practicable means of continued study are not at hand. A local junior college offers an immediate opportunity, and community colleges are now being founded at the rate of one every 2 weeks. Correspondence courses and programed learning can be pursued at home. The National Educational Television Network expects, by 1971, to be providing credit-carrying courses equivalent to about half of an undergraduate program.

The importance of vocational training to parallel academic courses is attested to by the fact that increasing numbers of women are going to college and that almost 70 percent of women college graduates work during the second half of their lives. Many high schools offer vocational courses suitable for their graduates to take. Four-fifths of the larger junior and community colleges provide technical training under the National Defense Education Act. The opportunity to learn advanced skills to match national scarcities is clear from the very names of the courses: Electronics, plastics, nucleonics.

For mature women using education facilities at any level, part-time study is a likely pattern. The legitimacy of part-time study must be recognized both by institutions of higher education in accepting plans of study projected on this basis and by other academic bodies determining eligibility for fellowships, scholarships, loans, and so forth.

Many rigid requirements in regard to admission, academic prerequisites, residence, and the like, as well as the scheduling of classes and other activities, will have to yield to a new demand for flexibility. For instance, colleges and universities might use proficiency tests more widely as a basis for determining whether persons have enough knowledge about a subject to be given credit for it, even though that knowledge was acquired outside regular academic courses.

Existing studies of education take too little account of sex differences—many averages that include performance by men and women obscure the facts about both. Research agencies should be encouraged to analyze more data by sex. Too little is known about what motivates girls, about the effects of economic, ethnic, religious, and regional backgrounds on their aspirations and learning processes. Much thinking is now being done about the need to teach persons how to solve problems, and about the need to teach broadly based fundamentals that will survive change. Such training has special relevance for women, who can be expected to leave their field of work for a period of years and then to return to it, or to enter another.

We believe that a Federal program should be established to survey, summarize, and disseminate research and statistics on women's education, that new studies should keep separate data on males and females.

Counseling for Choice

In a democracy, where the choices are broad and ever changing and where ultimate decisions are made by individuals, skilled counseling becomes an inseparable part of education. There are crucial times in every person's life when awareness of the alternatives open to him can be decisive in the use to which he puts his abilities. With the proper counseling he can be made aware at the proper times, and can be guided in making decisions which will prevent waste of both human and material resources.

Because the life patterns of women usually differ from those of men, the counseling of girls and women is a specialized kind of counseling. From their infancy girls are conditioned to roles which confine their talents to narrow channels. Women of all levels of skill need encouragement to develop broad ranges of aptitudes and interests that will carry them into higher education. Imaginative counseling can lift their aspirations above stubbornly persistent assumptions about "women's roles" and "women's interests" and lead them to choices that have the authenticity of their inner selves.

Preparation for Family Life

Widening the choices for women beyond their doorstep does not imply neglect of their education for responsibilities in the home. Modern family life is demanding, and most of the time and attention given to it comes from women. At various stages of their lives, girls and women of all economic backgrounds should receive education in physical and mental health, child care and development, and human relations within the family.

Courses in home management should treat the subject with new breadth and include not only nutrition, textiles and clothing, housing and furnishings, but also the handling of family finances, the purchase of consumer goods, the use of family leisure, and the relation of individuals and families to society.

We know too little about effective instruction in homemaking skills, particularly about its timing. Neither home economics nor health education can be taught once and for all or at only one level; these subjects gain relevance at the time when a girl or woman finds them the answer to a need. For many high school young-

sters, instruction in management of money, selection of food and clothing, and the care of younger children starts with responsibilities they bear in their families.

Girls who drop out of school are likely to do so because they must assume responsibilities beyond their years either in the homes from which they come or in homes of their own. School-age girls who drop out because of pregnancy are an extreme case of those for whom special instruction is necessary.

Experiments in schools at all levels, from the elementary grades through junior college, and by private organizations working with young people and young married couples are developing new and effective patterns. The extent to which education for family responsibility can best be done outside of school through media such as television needs exploration.

In the last years of high school many students are looking forward to marriage in the near future. Courses in the social and economic responsibilities involved in establishing a home are sometimes studied advantageously by boys and girls together, and studying them together often contributes to their knowledge of each other's interests and concerns. Even women's colleges have given remarkably little serious thought to the better preparation of their students for homemaking.

Women should have opportunity for education about sex and human reproduction in the context of education for family responsibility.

School Library Reporter

RICHARD L. DARLING

Office Specialist for School Libraries

SCHOOL LIBRARIANS will be quick to see in *Schools for the Sixties* a renewed demand for excellent school libraries and a new emphasis on the importance of a school's having an abundant and handy supply of books, periodicals, and audiovisual aids.

Schools for the Sixties has just been published by the National Education Association's Project on the Instructional Program of the Public Schools. The book contains 33 recommendations for the improvement of elementary and secondary schools. Recommendation 28 pertains directly to school libraries, but many of the other recommendations also emphasize, either directly or indirectly, the need to improve the school's libraries and other centers for instructional materials.

Among the ideas and suggestions in *Schools for the Sixties* that have special meaning for the school librarian, these are particularly noteworthy:

- Each school system should have at least one well-planned center for instructional materials and resources, consisting of at least a library and a headquarters for audiovisual equipment and materials. Each school building, furthermore, should have an instructional materials center.
- These centers should be staffed by persons whose professional education and experience qualify them to be not only librarians and audiovisual experts, but advisers on curriculum and instruction.
- Schools should make an abundance of good materials easily available to both students and teachers: to students so that they can learn independently; to teachers, so that they can plan creative teaching.
- Today's emphasis on programs planned for individual pupils means that instructional materials will have to be selected to fit the requirements of each program.
- In a day when knowledge is growing at an explosive rate and schools can no longer hope to have a curriculum that covers all that should be taught, the curriculum content must be highly selective to teach children how to think creatively, to discipline their minds, to develop methods of inquiry and the ability to apply knowledge, and to learn independently.
- Regional curriculum and instructional centers should be established for research. One center, for instance, might devote its efforts to the evaluation of instructional materials.
- Teachers must keep abreast of changes in their fields. Educators should search for the most effective and appropriate uses of educational TV, programed materials, and other new instructional media; and librarians should examine the materials available through these media to determine their value in expanded school library programs.

Schools for the Sixties is the first of four volumes which the NEA project will publish. It is available from the Project on Instruction, National Education Association, 1201 16th Street NW., Washington, D.C.

SEVERAL interesting ideas on how secondary school library facilities can be made to provide many types of materials for highly individualized instructional programs are set forth in a new publication by Ralph E. Ellsworth and Hobart D. Wagener. One of the most interesting is carrels for independent study. The book, which is attractively illustrated, gives a detailed description of many types.

The School Library: Facilities for Independent Study in the Secondary School goes beyond facilities. The recommendation that a high school library may need 50,000 volumes to give adequate service suggests the need for a reexamination in many school systems of current levels of expenditures for secondary school library books. The book also discusses in a provocative way the merits of centralized and decentralized libraries in large high schools.

Statistic of the Month

Five-year-olds in school

Of all the 5-year-olds in the country in October 1962, two out of three were in school—enrolled either in a kindergarten or in an elementary school. Out of every five in school, four were in kindergarten and one was in the first grade.

In the 15 years from 1947 to 1962, the number of 5-year-olds in the population increased almost 50 percent. During the same period, the percentage of 5-year-olds enrolled in school increased from 53.4 to 66. The percentage in kindergarten increased from 28.0 to 53.8, but the percentage in the first grade decreased from 25.4 to 13.0.

The 5-year-olds in kindergarten in 1962 were almost equally divided between boys and girls, but the slight difference between them was in favor of the boys. Most of these children—82.5 percent of them—were in the public schools. The following tabulation shows, by color and sex, the number of 5-year-olds enrolled in public and private kindergartens in October 1962:

	Public schools	*Private schools*
White:		
Male	817,000	185,000
Female	768,000	164,000
Nonwhite:		
Male	116,000	17,000
Female	121,000	20,000

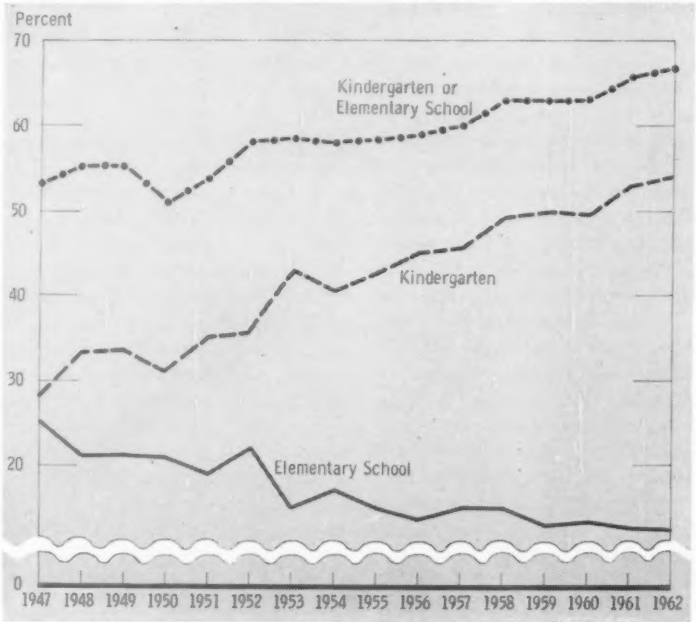
The table and chart show the changes in enrollment, both in numbers and percentages. The data come from the Bureau of the Census, which urges caution in using the figures for making short-term comparisons; that is, between one year and the next. The data are based on samples, the Bureau points out, and also may carry the effect of some bias in response or coverage. They are more reliable for showing trends over several years.—ROSE MARIE WALKER, *educational statistician, Office of Education.*

Number and percentage of noninstitutional population 5 years old enrolled in public and private kindergartens and schools, in October, 1947 to 1962

Year	Population 5 years old	Enrollment					
		Kindergarten		Elementary school		Total	
		Number	Percent	Number	Percent	Number	Percent
1962	4,101,000	2,208,000	53.8	532,000	13.0	2,740,000	66.8
1961	4,097,000	2,176,000	53.1	539,000	13.2	2,715,000	66.3
1960	4,023,000	1,984,000	49.3	577,000	14.4	2,561,000	63.7
1959	3,934,000	1,948,000	49.5	526,000	13.4	2,474,000	62.9
1958	3,845,000	1,886,000	49.1	569,000	14.7	2,455,000	63.8
1957	3,748,000	1,711,000	45.7	545,000	14.5	2,256,000	60.2
1956	3,665,000	1,652,000	45.1	508,000	13.8	2,160,000	58.9
1955	3,544,000	1,521,000	42.9	539,000	15.2	2,060,000	58.1
1954	3,522,000	1,435,000	40.7	597,000	17.0	2,032,000	57.7
1953	3,521,000	1,533,000	43.5	523,000	14.9	2,056,000	58.4
1952	3,724,000	1,330,000	35.7	822,000	22.1	2,152,000	57.8
1951	3,009,000	1,046,000	34.8	573,000	19.0	1,619,000	53.8
1950	2,726,000	846,000	31.0	566,000	20.8	1,412,000	51.8
1949	2,865,000	960,000	33.5	618,000	21.6	1,578,000	55.1
1948	3,018,000	1,008,000	33.4	653,000	21.6	1,661,000	55.0
1947	2,766,000	774,000	28.0	703,000	25.4	1,477,000	53.4

Source: Department of Commerce, Bureau of the Census, Current Population Reports, Series P–20.

Percentage of noninstitutional population 5 years old enrolled in public and private kindergartens and schools in October, 1947 to 1962



Motivation in Automated Instruction

J. WILLIAM MOORE and WENDELL I. SMITH

Bucknell University, under a grant from title VII of the National Defense Education Act, is conducting research on some motivational factors in programed instruction. The purpose of the investigation is to (1) develop and test methods of identifying certain motivational characteristics related to achievement, and (2) identify a method of instruction which would provide for individual differences in motivation as well as individual differences in intellectual ability. Although the problems of motivation in learning are not unique to programed instruction, we chose programed instruction as the method of instruction for the project because it offers the best possibility of exercising satisfactory control over the instructional variables.

The Hypothesis

In programed instruction the problems of motivation are readily observable in the variation in attitudes toward instructional materials used by pupils of comparable ability. Although Skinner believes that the *rate* at which pupils of different abilities complete programed material is sufficient to sustain their interest, research indicates that there are great inconsistencies in the attitude of pupils at all levels of ability. Some bright pupils are motivated highly by programed instruction, others are not. The same is true for slow pupils. Differences in motivation also exist in the conventional classroom in which ability grouping provides for individual differences. In spite of the care exercised in grouping pupils by ability, great variation in academic achievement within the group remains. Neither ability grouping nor allowing pupils to complete programed material at their own rate provides the most effective conditions for learning. Achievement must be, in part, a function of attitudes toward learning.

Research conducted by Atkinson on the relation of success in a ring-tossing game to pupils' attitudes offers a possible explanation for the great variations in pupil attitudes toward programed instruction. Atkinson believes that a pupil who is strongly disposed to a "fear of failure" prefers tasks that are extremely easy or extremely hard, and avoids tasks that offer only a 50-percent probability of success because such tasks involve the ego. When a task is extremely easy, the probability of failure is small; when a task is extremely difficult and success is unlikely for anyone, no stigma is attached to failure. When the probability of success becomes greater than 50 percent, his interest increases and the task becomes more pleasant for him. On the other hand, the motivation of a pupil who has a "high hope of success" decreases with continued success or continued failure. It increases as the probability of success approaches the 50-percent level. When free to choose, a pupil with a "high hope of success" will look for new and more difficult tasks as he masters old ones.

In our opinion, Atkinson's explanation of motivation to achieve could be applied to motivation in programed instruction as well as in the conventional classroom. Specifically, we believe that pupils of the same level of ability who are strongly motivated to achieve will prefer more difficult teaching frames in a learning program than will pupils who have a strong "fear of failure." If programed materials are to continue to be useful, they must provide not only for individual differences in ability but also for individual differences in motivation to achieve. If our hypothesis is valid, then it is not true that the successful completion of a number of frames is sufficiently satisfying to the pupil to sustain his interest. Our hypothesis suggests that pupils can no longer be grouped on ability alone and then taught by a difficult, problem-solving method of instruction if they are bright, or by "spoonfeeding" if they are slow. Rather, we must group by level of ability and regroup by type of motivation. The method of instruction for pupils with "high hope of success" should take the form of difficult problem solving; for pupils of comparable ability with "fear of failure," some type of "spoonfeeding."

To test our hypothesis that achievement and interest in programed instruction are related to type of motivation as well as to ability, we have conducted two experiments.

The First Study

The first experiment was a pilot study carried out in 1962 using 95 sixth-grade pupils. The pupils were divided into two groups and taught mathematics by programed instruction. Several tests which showed promise as measures of the motivational variables we have already discussed and a projective test were administered at the beginning of the experiment.[1]

Two forms of programed materials,

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[1] The projective technique consisted of a portion of the Thematic Apperception Test for which a special scoring system has been developed by Robert Birney, Richard Teevan, and Harvey Burdick.

each form consisting of four units of instruction, were developed. The first was an easy form for which the pupil was asked to write the correct response on practically every frame. The second was more difficult and consisted of the same learning program, except that the criterion or test frames were placed earlier in the sequence of material. In this way, the pupils given the difficult form were required to respond to some of the frames on the program before they had enough information to provide the correct responses. This procedure made it possible to keep the content and the number of frames comparable for both programs, and at the same time, to change the perceived level of difficulty.

The two groups used the four units of programed material in alternate easy and hard forms. Group A used unit 1 of the easy form, unit 2 of the hard form, unit 3 of the easy form, and unit 4 of the hard form. Group B used unit 1 of the hard form, unit 2 of the easy form, and so on. Since no teachers participated in the instruction, we assumed that achievement on the mathematics test was a result of working with the learning program only.

In analyzing the data, we used the various tests of motivation as a basis for classification. After we had classified the pupils, we compared achievement test scores on each unit for each group. The results of the analysis show that pupils who differed on one measure of motivation also differed in achievement.

We found that in the high-achiever group, the "low anxiety" pupils performed equally well on both the easy and hard sequence of programed materials. Their performance seemed to indicate that the order of presentation for this group was of little importance as a motivating variable. We also found that their performance on the achievement measures was consistently higher than the performance of any other group. On the other hand, our comparison of the performance of the high anxiety group of the high achievers indicated that the order of the presentation of materials did affect achievement: the high-achievement, high-anxiety group did best on the hard-easy sequence of programed materials.

In the low-achiever groups the performance of the pupils seemed to be related to both the level of anxiety and the order of presentation of materials. Specifically, the low-achiever, low-anxiety group appeared to achieve at a higher level on the easy-hard sequence; and the low-achiever, high-anxiety group achieved at the highest level on the hard-easy sequence.

The other measures of motivation used in this study did not show any clear relationship to achievement, but they did serve as a stimulus to further investigation.

Second Study

After we had analyzed the data from the pilot experiment and revised the tests of motivation and the programed materials, we conducted a second study. In this experiment, undertaken for 6 weeks during the 1962–63 school year, about 500 eighth-grade pupils enrolled in mathematics classes were assigned to 1 of 6 experimental classes. All pupils were given four of the revised measures of motivation, including the Thematic Apperception Test, the test of anxiety used in the pilot experiment, a modification of the test of anxiety, and a mathematics preference test to measure the pupil's preference for easy or difficult problems in mathematics. Each group used six versions of material which differed in difficulty. The procedure for varying the difficulty of the programed units differed from that used in the pilot experiment. Instead of using perceived differences in difficulty, the difficulty of the program was increased by decreasing the number of frames used to teach each concept, thereby increasing the complexity of the remaining frames. As in the pilot study, all other conditions for the experimental groups were the same.

In analyzing the data obtained in this study, we followed the same procedures we had followed in the pilot study. Pupils were classified on the basis of the motivational variables (using each of the four tests of motivation as a basis for classification) and their achievement scores in mathematics were compared by using the analysis of covariance techniques. We are currently completing other analyses of data, such as comparisons of pupils' attitudes.

SINCE the analyses of all of the data produced by this experiment have not been completed, we cannot draw conclusions at this time. The preliminary findings, however, point in the direction of a relationship between motivation and achievement. It appears possible that pupils of comparable ability but with differing motivational characteristics frequently require different types of instruction if achievement is to be maximized. The experiments suggest that some pupils, when using programed instruction or when learning through the conventional methods of instruction, require a challenging, difficult approach to the learning of a concept; others with the same ability require an easy, nonthreatening method for learning the same concept. Other outcomes of the research which we find equally encouraging are the results of the motivational tests. Although they are crude, these instruments show promise as quantitative measures of human motivation, measures which may be used by the classroom teacher.

Loans to Cuban Students

The Office of Education has allocated $600,000 in Federal funds to 213 colleges and universities for loans to Cuban students. The loans are similar to loans under title II of the National Defense Education Act: they bear 3 percent interest and must be repaid within 11 years after the borrower ceases to be a student.

Needed—a Way To Save Curiosity

FRANCIS A. J. IANNI and LOIS JOSEPHS

CURIOSITY SEEMS AS NATURAL in the young child as breathing. What parent or teacher has not experienced with both joy and impatience the thousand and one questions—sometimes hilarious, sometimes disturbing—that the young child's curiosity prompts him to ask? Yet as children grow something happens. As they become students, curiosity—or at least the behavioral manifestation of it as shown in a love of learning—disappears into unexplainable disenchantment. Schools, in some way or other, seem to inhibit, if not crush, the unconscious wonder and curiosity with which most children naturally view the world.

Apparently, the mechanical learning process that characterizes the traditional classroom does not sustain a child's curiosity. Nor do highly structured, contrived, and artificial experience-learning situations, such as playing store. This loss of curiosity is a cause for alarm to educators, for, to a noncurious student, learning is a rote activity devoid of interest and meaning. Somehow we must give the child opportunities to exercise his curiosity even while he is being taught, but taught in such a way as to encourage the discovery of knowledge. We must both sustain and discipline curiosity by helping the student establish concepts of learning from which he may induce knowledge. And once he has established concepts, we must have ready for him specific guides that will help him to acquire an interest in discovering knowledge that will continue to grow.

Most educators would readily accept this approach to learning. Bruner, in answering the question of how learning can be made to have permanent significance for students so that it will affect their thinking all their lives, has this to say:

> The dominant view among men who have been engaged in preparing and teaching new curricula is that the answer to this question lies in giving students an understanding of the fundamental structure of whatever subject we have to teach.[1]

The problem, then, seems to be not a disagreement on methods and goals, but one of practical application.

There is, however, evidence of progress toward a conceptual method of teaching in certain subject areas. In language instruction, for example, although there is still much confusion and disagreement among linguists and among teachers, and between linguists and teachers, both groups generally agree to the validity of a conceptual method of language instruction. Most of them agree, for instance, that to teach rote rules of Latin grammar as a basis for understanding English is to teach rules that clarify neither the understanding of English as a language nor the understanding of the total concept of language into which related facts may logically fall. Both linguists and teachers have written much on this point. One of them, Louis Zahner of Groton School, asks this question:

> Do we teach it (language) as if there were a universal grammar best exemplified by Latin, and try to cram its living structure into dead Latin grammatical categories, terminology, and definitions?[2]

Pooley, writing about "the current dissatisfaction with the teaching of grammar," analyzes the teaching possibilities inherent in methods of language instruction is suggested by such linguists as Henry Sweet, Janet Rankin Aiken, and Charles C. Fries.[3] These methods—that is, some form of descriptive rather than prescriptive teaching of language structure—are widely accepted as the best methods. Wide acceptance of the philosophy indicates some progress toward widespread practical application.

There are other indications of progress as well. One is the relative popularity of Robert's books on English, which spell out ways of teaching conceptual language on a few grade levels.[4] The Commission on English Summer Institutes of the College Entrance Examination Board insist on having a language authority as part of each program. The *English Journal* and *Elementary English*, along with other journals, frequently publish articles on new conceptual methods of language learning. The Carnegie Institute of Technology's Curriculum Study Center is now planning a curriculum in literature based on the concept of literature as the artistic recreation in a literary art form of what it has been like to be alive. It does not introduce "Julius Caesar" with a series of facts about the Elizabethan theater or a lecture on Shakespeare's political message. Instead, from his own reading and a few carefully devised questions by the teacher, the student apprehends the significance of the play in terms of the concept.

At present, Northwestern University, through a cooperative research program contract with the Office of

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[1] Jerome S. Bruner, *The Process of Education*, Harvard University Press, Cambridge, Mass., 1961.

[2] Louis Zahner, "What Kind of Language Teaching?" *Essays in the Teaching of English*, Appleton-Century-Crofts, Inc., New York, 1961.

[3] Robert C. Pooley, *Teaching English Grammar*, Appleton-Century-Crofts, Inc., New York, 1957.

[4] Paul Robert, *Patterns of English*, Harcourt, Brace & World, Inc., New York, 1956. ———, *English Sentences*, Harcourt, Brace & World, Inc., New York, 1962.

Education, is investigating language curriculums for the schools.

Instruction in the new mathematics is an example of the superiority of the conceptual over the rote method. In two decades of development, the "new" mathematics has created a new view of mathematics education. Keislar,[5] for example, shows that learning in mathematics can be doubled in young children if they are taught basic ideas in the form of algebraic structures and not as a set of rules. In another research program, Suppes[5] demonstrates that gifted youngsters in the fifth and sixth grades can be taught mathematical logic usually restricted to college students if it is presented in the form of concepts which the children themselves develop. In neither case is the subject really a "new" mathematics—it is an old subject taught in a new way—the conceptual rather than the perceptual.

In another subject, physics, a program has been developed to point out to students some of the structure of physics and how this structure was discovered. This new method concentrates on fewer facts than are usually included in standard elementary physics courses. It emphasizes understanding the concepts of physics, not memorizing facts, and spends considerable time on understanding ideas which unite the facts and the explanations of them. As the student learns of the almost boundless range of dimensions—from the immensely large to the infinitesimally small—he finds out how the world about him works. In the laboratory he works with simple apparatus that enables him to use his developing concepts to perform practical experiments. The true basis of the "new" physics, like the "new" mathematics, is the principle that concepts are developed by the learner and that facts become meaningful to him within his concepts. But progress in physics instruction is limited to special grade levels and to certain places.

[5] See the publications of the School Mathematics Study Group and the writings of Evan R. Keislar and Patrick Suppes.

There are a number of problems to be solved before traditional classroom methods can be converted to the conceptual method.

The first problem is one of articulation between levels of education. For instance, we continue to develop excellent mathematics programs for the fifth, sixth, and seventh grades that are not necessarily related to what the child learned in the first four grades nor, in many cases, to what he will study in the next five. Such a practice is valuable only for research. When it is suggested that we should develop a complete curriculum, we hear cries of "national curriculum development," "putting the teacher in a straitjacket," or "failure to consider the special problems of each grade." Not only is there a lack of articulation among grade levels and educators themselves, but there is little articulation among educators, subject-matter specialists, and psychologists. Although he speaks only of the problem of articulation in the teaching of English, Squire's description of the problem can be extended to all subjects:

> Without question the overwhelming majority of groups with which I have worked are persons of competence and good will, and some associations are making a sincere attempt to bring all factions together. But I am convinced that the promise of improved English teaching will never be realized until all individuals together, and especially the leaders of various factions, are willing to set animosity aside and strive for the common good. I believe that we must find a way to work together with respect and understanding, with a clear recognition of past achievements and past limitations, and with a realization of the potential contributions of everyone.[6]

The second problem is how to overcome the teacher's lack of preparation for teaching concept-oriented courses. Leaving aside the problem of the teacher who lacks knowledge, do most teachers have the training necessary to cope with the penetrating questions that students will ask in concept-oriented courses? Our observation leads us to believe that many do not. What can be done to prepare teachers for this type of teaching is difficult to say. If it were simply a matter of training them to teach concept-oriented courses, the task, though difficult, would not be impossible, given the present level of knowledge from research on concept formation and the teacher-learning process. But, in addition to training new teachers, there is the frustrating task of retraining and reorienting teachers now in the classroom. Would inservice training programs be successful in preparing the traditionally prepared teacher to cope with the new courses and the milieu within which they must be taught? Experience with the new mathematics and physics courses seems to indicate that in many cases they would not. Somehow we must devise a means for retraining as many of our teachers as possible and at the same time we must make certain that preservice training is preparing new teachers properly and that those not properly prepared are weeded out.

[6] James R. Squire, "English at the Crossroads: The National Interest Report Plus Eighteen," *The English Journal*, September 1962, vol. L.

Perhaps the third problem is the most important: How to put the knowledge gained from research into practice.

We have been reluctant to translate into practice the wealth of research information on the importance of curiosity to the learning process.

Somehow we must pick up the findings of research more quickly so that practicing teachers can use them and new teachers can learn them; so that learning will no longer be the rote memorization of facts or, even worse, a random and useless activity for the student; and so that educators will be able to sustain and channel curiosity within a planned framework of knowledge. Somehow we must translate research into a specific program, then into a widely used program of conceptual teaching. (For more on the solution of the problem, see Dr. Ianni's column, p. 15.)

Perhaps curiosity is not predictable. But within the fluctuating range of the unpredictable, curiosity must be directed and channeled; only then can it solve problems instead of creating them.

Realistic property accounting

CHARLES T. ROBERTS

AUTOMATION IS HELPING State and local school systems put the recommendations of the Office of Education's *Handbook III* into effect. The handbook—a guide to property accounting for local and State school systems—was developed by many national educational organizations and the Office of Education to meet a need of long standing.[1] Nearly all of the States are now using the handbook to some extent.

The Office of Education receives many requests for technical assistance with the job of putting Handbook III to use. It has been able to help State agencies through title X, sec. 1009, of the National Defense Education Act, which authorizes payments to States for the improvement of statistical services.

One of the Office's services is in the form of a publication, *Guide for Implementing Handbook III: Property Accounting for Local and State School Systems* (OE–23029, available on request from the Office). It describes in detail a system of property accounting designed last year at a national conference of State and local education officials. The system is usable by all State and local educational agencies, whether they have data-processing equipment or not; most States and more than 1,000 local school districts now have such equipment.

The *system* includes (1) detailed site, building, and equipment records at the local level for its use in accounting for sites and buildings; and (2) 1 site card, 3 master building cards, and 1 deck of space cards for each local district punched and printed out by the State for reporting school facilities information to State departments and the Office of Education. Cost accounting forms for sites and buildings were developed by local and State educators in Utah with the assistance of the Office.

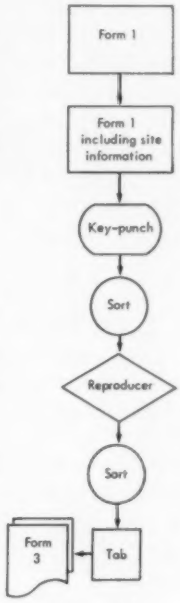
Dr. Roberts is a program specialist in the Field Programs Branch of the Office of Education. One of his duties is to give consultive services to the States on using Handbook III, Property Accounting for State and Local School Systems. *In September 1961 he contributed an article to* School Life *which reported on a national conference of representatives from States having statewide systems of property accounting.*

The procedure followed for reporting site and building information to the State office is this:

1. The State department of education prepares form 1 (identification of sites) and mails it to local districts for completion. Local districts complete the form and return it to the department. The State department punches the site card, sorts the cards for the whole State on "date acquired," assigns site numbers chronologically, sorts

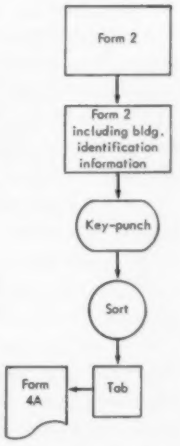
PHASE I.—SITE

1. The State department sends form 1 to local districts for site identification information.
2. The local district lists sites, year acquired, ownership, area, and location, and returns one copy of form to the State agency.
3. The State agency keypunches site card.
4. Sorts cards on "date acquired" (statewide).
5. Numbers sites in chronological order by year acquired.
6. Sorts by district and merges in district header cards.
7. Prints site information on form 3 and sends to district.

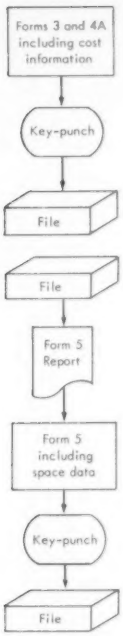


PHASE II.—BUILDINGS

1. State department sends form 2 to local district for building information.
2. The local district supplies information on site number, building number, ownership, year acquired, kind of building, construction, availability, mobility, capacity, service systems, and fire protection systems, and returns one copy to the State.
3. The State department keypunches building card 1.
4. Sorts by district, merging in district header cards.
5. Prints building information on form 4A and sends to district.



[1] *Property Accounting for Local and State School Systems*, by Paul L. Reason and George G. Tankard, Jr. Bulletin 1959, No. 22, U.S. Government Printing Office, Washington, D.C. 20402, 1959, 194 pp., 75 cents.



PHASE III.—COST

1. The local district lists all cost information for sites and buildings on forms 3 and 4A and returns one copy to State department.

2. State department keypunches cost information into site card and building card 2.

3. Files site and building cards.

PHASE IV.—SPACE

1. State department prints form 5 as a space questionnaire form.

2. Sends to local district.

3. Local districts counts and measures spaces, completes form, and returns to State department.

4. State department keypunches information into building cards 1 and 3 and into space and adjunct space cards.

5. Files cards.

cards for district, and interprets the district name and number on the card. Site information is then printed on form 3 (printout for all site information) and sent to each district.

2. The State department prints form 2 (building identification) and sends it to local districts for completion. The local district supplies the information requested, taking the site number from form 3. When form 2 is returned to the State office, it is punched into building card 1. The cards are sorted by district and form 4A (printout for most of building data) is printed and sent to the districts.

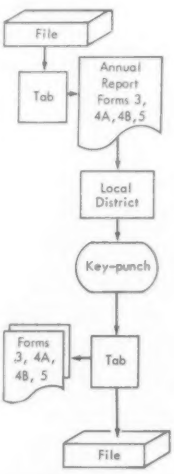
3. The State department asks local districts to list cost information on Forms 3 and 4A for all sites and buildings. When it receives the information, the State office punches the information on the site card and building card 2, and files both cards.

4. The State department prints form 5 (space printout data) as a space questionnaire and sends it to local districts for completion. When they have completed and returned it, the State office punches the information into space cards. Space cards are tabulated and the total number of spaces and areas are punched into building cards 1 and 3. A set of cards and printed forms 3, 4A, 4B (printout of the total of all space cards), and 5 are sent to each district.

For developing the annual report, printed forms 3, 4A, 4B, and 5 are sent to local districts yearly for updating, corrections, deletions, and additions. All corrections and additions are dated so that the State department can sort, assign site numbers, and reprint forms 3, 4A, 4B, and 5. Updated forms are sent back to the local district for school plant records. (These records are not to be confused with the cost accounting record developed for the State of Utah. The Utah record forms are for cost accounting purposes, these forms are for inventory purposes.)

Experience with automatic data-processing machines has convinced school officials that these reduce the time required for requisitioning, purchasing, taking inventory, and transferring equipment. For this reason, they are becoming interested in equipment control. Local school business managers in States—New Mexico, Mississippi, Colorado, Kentucky, Tennessee, Florida, Pennsylvania, and South Dakota—recently established accounting systems for equipment and some have recommended that national codes be developed.

The Jefferson County, Colo., school system has developed a uniform nomenclature code which other school systems may be able to adapt. The code was developed on the basis of the names of industrial manufacturers rather than on the function of the equipment. The classifications were developed from the *Standard Industrial Classification Manual*,[2] prepared by the Office of Statistical Standards, Bureau of the Budget, in 1957. It has 10 digits. The first four digits designate the group and class; the others describe other characteristics, such as style, type, shape, size, and color. Equipment classified in the manual includes furniture, vehicles for transportation, fabricated metal products, musical instruments, machinery, and electrical machinery.



ANNUAL PROCEDURE

1. State department prints annual report and sends two copies to local district.

2. The local district makes corrections, additions, deletions and returns the report to State department.

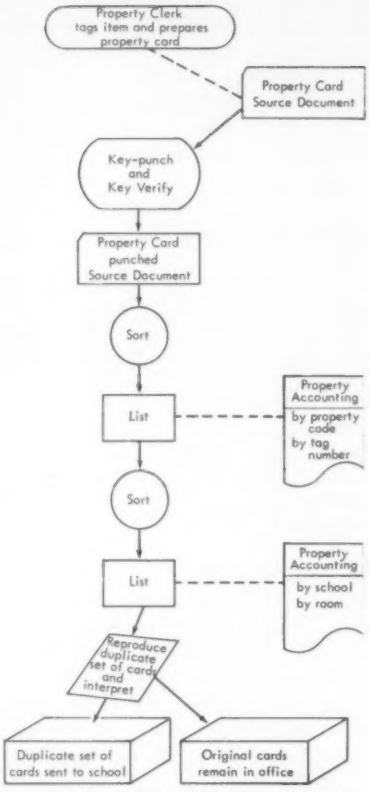
3. The State department keypunches correction.

4. Prints annual report and sends one copy to local districts.

5. Files cards.

[2] Washington, U.S. Government Printing Office, Washington 25, D.C., $2.50.

PROPERTY ACCOUNTING
Jefferson County, Colo.



1. The property clerk tags a complete school at one time and routes the cards to data processing for keypunching.

2. All cards for a school are sorted together by tag number and the 10-digit property code, and a listing is run on the 403 accounting machine to group all items together.

3. The cards are then sorted to room number sequence and a second list is run on the accounting machine showing all items in each room of the school and their dollar value.

4. The lists are distributed to the property clerk and the office manager for establishing insurance values, and to the audiovisual and music supervisors for control over their specific equipment and a list is sent to each school.

5. A reproduced set of cards is sent to each school and these are used to handle transfers of equipment from one room to another or to another school.

6. The original cards are filed in the data-processing department and are updated for any items added or deleted from inventory. These changes are listed for insurance purposes before being combined with the master file.

7. All cards are filed by school, with the exception of band and audiovisual equipment, which are filed together for all schools. We can thus run periodic listings of these two groups to determine availability and future requirements. If new lists are run for a school, the band and audiovisual cards are pulled and combined with the other cards for the school to make a complete list.

Should this code be too lengthy for some districts, it can be shortened to eight digits, or even fewer. When purchasing equipment, however, detailed information of items is helpful in writing specifications for bidders.

Districts without automatic data-processing machines can use the same punchcard to record equipment identification manually. The card allows space for most types of information. Once the card is filled in, it can be filed as a control for an individual piece of equipment. Duplicate sets of cards can be made for the control office and the principal's office. The cards are easy to file, easily accessible, inexpensive, and ready to be keypunched, if automatic machines are used later or if they are to be sent to a service center for processing.

The code manual may be purchased from the Association for Educational Data Systems, State Department of Education, Tallahassee, Fla., for $2.75.

Equipment accounting is a large job, but once begun the benefits far outweigh the labor. The automatic machine for accounting may be the instrument that helps school accounting come of age.

When quality school facilities records are available, and then only, will educators be successful in justifying added expenditures for education. Quality school records will improve the scientific method of management control problems and will help us better our schools.

1964–65 NDEA Language Fellowships

Colleges and universities taking part in the modern foreign language fellowship program authorized by the National Defense Education Act now have application materials for awards to be made for academic year 1964–65 and the summer of 1964. There will be about 1,200 graduate and undergraduate awards for the study of languages and related area subjects critical to U.S. needs.

About 1,000 awards will be made to graduate students planning to enter college teaching, government service, or programs in nonprofit, nonsectarian organizations. Fellows will receive tuition and fees, and stipends.

The program also includes 80 travel and maintenance awards under the Fulbright-Hayes Act for the study of the languages of non-Western areas. Fellows must be preparing to teach in college and have completed 2 years of graduate work, one in the language in question.

A few postdoctoral fellowships will be granted to linguists for Russian study at Indiana University in the summer of 1964. There will also be 10 awards made for a year of study of Arabic, Chinese, Hindi-Urdu, Indonesian, Japanese, and related area subjects for faculty members of 4-year colleges with programs in non-Western studies.

Undergraduate awards will number about 200 and will be for the intensive study of certain non-Western languages in the summer of 1964 at NDEA language and area centers. Candidates must have had at least a year of college work in the language to be studied and should be planning to continue such study.

Application forms are available from the institutions taking part in the program. Details of the program are contained in the publication *1964–65 Modern Foreign Language Fellowship Program* (OE–55034), available from the Superintendent of Documents, Washington, D.C., 20402, for 15 cents a copy.

BONDS

for educational purposes

. . . sales, interest rates, et cetera . . .

Public Schools

By ELMER C. DEERING, *specialist on the financing of school facilities, Division of Elementary and Secondary Education, Office of Education*

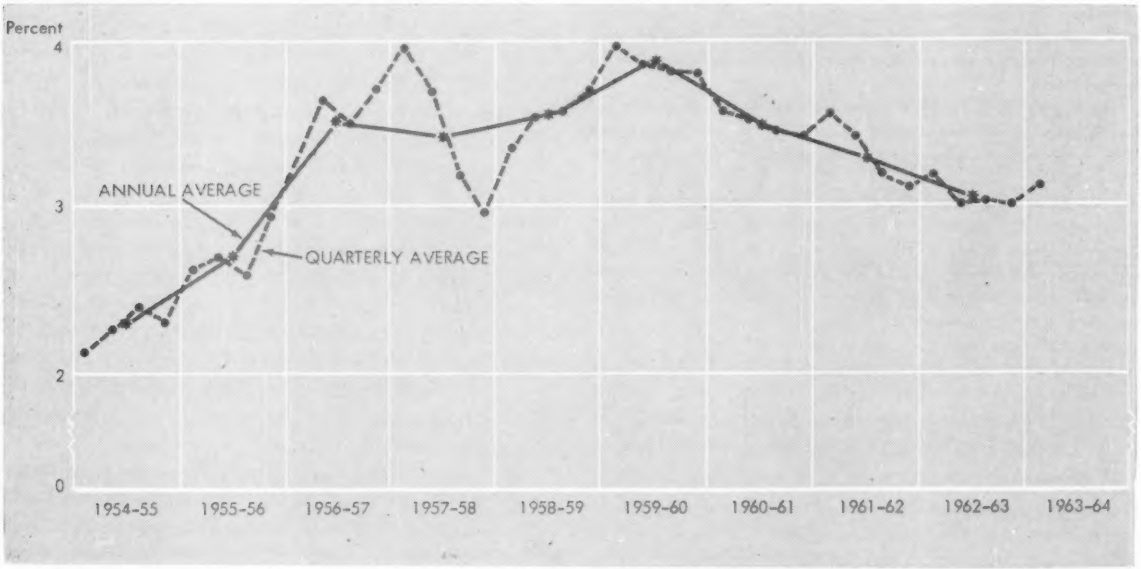
THE CHART BELOW is a backward look. Although it may not give us any guidance as to what course we should follow in regard to bond sales in the future, it may give us a perspective in which we can understand current movements and changes in the bond market. It shows that the median annual interest rate on school bonds rose sharply from 1954–55 to 1956–57. Then came a slight decline, then a 2-year upward swing, which brought the average to a peak of 3.84 percent in 1959–60. For the past 3 years, the average net interest cost has dropped steadily; in 1962–63 it reached a low of 3.03 percent, the lowest since 1955–56. Will it continue the downward trend, level off, or turn upward?

By following the quarterly averages, we can see that the highest average for each of the last 4 years occurred in the July–September quarter. On the basis of history, the upward swing in the July–September quarter of 1963–64 was normal. If the interest rates follow the pattern of the past 4 years, they will turn downward in the October–December quarter. Strong forces are operating from both directions. It all depends upon which forces are the most powerful.

The figures on which the chart is based are as follows (for 1954–55 to 1958–59 they are medians; for 1959–60 to 1963–64 they are averages):

Year	*July–Sept.*	*Oct.–Dec.*	*Jan.–Mar.*	*Apr.–June*	*Annual*
1954–55	2.13	2.28	2.41	2.32	2.32
1955–56	2.63	2.71	2.60	2.95	2.70
1956–57	3.12	3.64	3.50	3.67	3.50
1957–58	3.94	3.69	3.17	2.96	3.43
1958–59	3.35	3.54	3.57	3.68	3.55
1959–60	3.94	3.84	3.80	3.79	3.84
1960–61	3.57	3.52	3.44	3.42	3.48
1961–62	3.54	3.42	3.18	3.10	3.27
1962–63	3.17	3.00	3.01	3.00	3.03
1963–64	3.11	----	----	----	----

THE AVERAGE NET INTEREST COST of 3.19 percent on all rated bonds in September 1963 was the highest since July 1962. The average for A-rated bonds was also the highest since July 1962. Both of these high averages were exaggerated by abnormal distributions among the ratings and terms of maturity. Normally, more than 30 percent of the bond sales are rated higher than A and about 25 percent below A. In September,



Annual and quarterly net interest rates on bonds sold for public school purposes: Median, 1954–55 to 1958–59; average, 1959–60 to 1963–64

more than 30 percent were lower than A, and only about 10 percent were above.

Average net interest cost of Moody-rated bonds sold on the primary market for public schools, by rating only: Annual 1959–60 to 1962–63; monthly, September 1962 to September 1963

Period	Aaa	Aa	A	Baa	Ba	All rated bonds
1959–60	3.26	3.63	3.77	4.21	4.55	3.84
1960–61	2.82	3.34	3.43	3.75	3.97	3.48
1961–62	2.84	3.23	3.19	3.51	3.93	3.27
1962–63	2.64	2.86	2.99	3.29	3.72	3.03
1962						
September	2.83	2.80	3.08	3.47	3.75	3.10
October	.....	2.75	2.96	3.16	3.84	3.02
November	2.38	2.73	2.88	3.17	3.22	2.90
December	2.56	2.73	2.99	3.27	3.86	3.06
1963						
January	2.53	2.79	3.00	3.28	3.78	3.02
February	2.68	2.77	3.00	3.25	3.73	2.99
March	2.47	2.76	2.93	3.22	3.61	3.00
April	2.73	2.87	2.91	3.21	3.53	2.92
May	.....	2.74	2.94	3.31	3.38	3.02
June	.....	2.99	3.04	3.36	3.58	3.14
July	.....	2.91	2.99	3.34	3.83	3.07
August	2.62	2.98	3.04	3.37	3.75	3.07
September	.....	2.96	3.13	3.33	3.76	3.19

Source: Sales reported by The Daily Bond Buyer; ratings, by Moody's Investors Service (rated bonds include 75–80 percent of all bonds for public schools).

Average net interest cost of Moody-rated bonds sold on primary market for public schools, by rating and by term of bond, for the latest quarter and month available

Term of bond	Aaa	Aa	A	Baa	Ba	All rated bonds
	Latest quarter (July–September 1963)					
Under 15 years	2.62	2.77	2.76	3.11	.....	2.75
15–24 years	.....	2.94	3.05	3.30	3.75	3.10
25 years and over	.....	3.00	3.21	3.38	3.79	3.20
All terms	2.62	2.96	3.05	3.34	3.77	3.11
	Latest month (September 1963)					
Under 15 years	.....	2.91	2.94	3.45	.....	2.93
15–24 years	.....	2.97	3.10	3.33	3.75	3.15
25 years and over	.....	.....	3.20	3.33	3.80	3.29
All terms	.....	2.96	3.13	3.33	3.76	3.19

Source: Sales reported by The Daily Bond Buyer; ratings, by Moody's Investors Service.

Colleges and Universities

By W. ROBERT BOKELMAN, *chief, Business Administration Section, Division of Higher Education, Office of Education, and* ELMER C. DEERING

BOND SALES for higher education exceeded $100 million in August. In the time the Office of Education has been collecting data on these sales, since January 1962, no other monthly total has been so high. The next highest total was $93.4 million in March 1963. Sales in August amounted to $102,892,000: Public institutions sold $89,653,000; private, $13,239,000.

The average interest rate on bonds sold in August was 3.19 percent, the most favorable since March 1963, when it was 3.11 percent. For public institutions, the average was 3.17 percent, made possible by an average of 2.98 percent on $42,150,000 worth of bonds sold by the State of California to finance the construction of instructional facilities on campuses of the State colleges and the university. For private institutions, the average was 3.30 percent.

All the bonds sold by private institutions—but only 9 percent of the bonds sold by public institutions—were purchased by the Housing and Home Finance Agency. Part of the explanation of the small percentage of public institutions using HHFA is in the interest rates on bonds sold to finance auxiliary facilities. Bonds sold to HHFA for this purpose had an average interest rate of 3.48 percent, but those sold to other investors had an average of 3.34 percent.

The sales in August are shown in the tables that follow: institution by institution in the first; by various groupings in the second.

Bond sales for publicly controlled and privately controlled institutions of higher education in the United States, by institution, August 1963

Institution	Amount sold (000)	Term (years)	Average net interest cost (percent)	Use of funds [1]
PUBLIC				
California State Colls [2]	$19,410	1–26	2.98	Instr.
Univ. of California [2]	22,740	1–26	2.98	Instr.
Southern Illinois Univ.	6,000	1–40	3.70	Res.
	2,220	1–25	3.49	Ctr.
	3,030	26–40	[3] 3.50	Res.
Louisiana Polytechnic Inst.	3,200	1–40	3.75	Res.
Northeast Louisiana State Coll.	1,200	1–40	3.75	Res.
Northwestern State Coll. of Louisiana.	600	1–38	[3] 3.50	Res.

See footnotes at end of table.

Bond sales for publicly controlled and privately controlled institutions of higher education in the United States, by institution, August 1963—Continued

Institution	Amount sold (000)	Term (years)	Interest (percent)	Use of funds [1]
Northeast Missouri State Coll.	511	1–14	3.40	Res.
	451	15–39	[3] 3.38	Res.
	1,389	15–39	[3] 3.50	Res.
Plymouth, Keene Teachers Colls.	1,420	1–20	2.74	Res.
Univ. of New Hampshire	220	1–20	2.74	Heat.
	550	1–30	2.74	Res.
	1,700	1–30	2.74	Din.
Univ. of Cincinnati	9,000	1–35	3.19	Res.
Northeastern State Coll.	1,350	1–27	3.92	Res.
Eastern Oregon Coll.	340	1–30	3.06	Res.
Oregon Coll. of Education.	1,240	1–30	3.06	Res.
Oregon State Bd. of Higher Education.	170	1–30	3.06	Land
Oregon State Univ.	500	1–30	3.06	Land
Oregon Technical Inst.	1,230	1–30	3.06	Ctr.-Res.
Portland State Coll.	1,190	1–30	3.06	Park.
	1,260	1–30	3.06	Ctr.
	100	1–30	3.06	Instr.
Southern Oregon Coll.	440	1–30	3.06	Res.-Din.
Univ. of Oregon	478	1–30	3.06	Din.
	700	1–30	3.06	Land
	892	1–30	3.06	Heat.
	1,060	1–30	3.06	Disp.
Univ. of Tennessee	93	1–14	3.35	Res.
	607	15–39	[3] 3.38	Res.
	172	1–15	3.34	Res.
	640	16–40	[3] 3.50	Res.
Utah State Univ. of Agriculture and Applied Science.	2,130	1–29	3.47	Ctr.-Res.
	1,420	30–39	[3] 3.50	Ctr.-Res.
PRIVATE				
Harvey Mudd Coll.	810	1–39	[3] 3.50	Ctr.
Santa Clara Coll.	2,500	1–39	[3] 3.13	Ctr.-Res.
Loretto Heights Coll.	1,200	1–37	[3] 3.50	Res.
	70	37–38	[3] 3.38	Res.
Kendall Coll.	540	1–39	[3] 3.38	Res.-Din.
Dordt Coll.	90	1–15	[1] 3.50	Res.-Din.
	325	16–39	[3] 3.38	Res.-Din.
Loyola Univ. (Louisiana).	638	1–13	[2] 3.50	Ctr.-Res.
	2,594	14–38	[3] 3.13	Ctr.-Res.
American International Coll.	435	1–39	[3] 3.38	Res.
William Carey Coll.	350	1–39	[3] 3.38	Res.
New York Univ.	848	1–39	[3] 3.38	Res.
St. John Fisher Coll., Inc.	1,330	1–49	[3] 3.38	Res.-Din.
Louisburg Coll.	300	1–39	[3] 3.38	Res.
Keystone Junior Coll.	390	1–49	[3] 3.38	Res.
Converse Coll.	569	1–39	[3] 3.38	Res.
Sienna Coll.	250	1–39	[3] 3.38	Res.

[1] Abbreviations in this column indicate the following uses: Instr., Instructional; Res., residential; Ctr., student center; Heat., heating; Din., dining; Park., parking; Disp., dispensary.
[2] For various campuses.
[3] Purchased by Community Facilities Administration, HHFA.

Bonds sold for higher education, August 1963: Number and amount of sales and average net interest cost, by type of institutional control, type of financing, type of bond, and type of facility to be constructed

Type of financing, bond, and facility	Number of sales	Bonds sold		Average net interest cost (percent)
		Amount (000)	Percent of total	
	Public institutions			
Type of financing:				
HHFA	7	$8,137	9.1	3.48
Other	29	81,516	90.9	3.14
Type of bond:				
Revenue	16	25,013	27.9	3.60
General obligation	20	64,640	72.1	3.01
Type of facility:				
Academic (instructional)	3	42,250	47.1	2.98
Auxiliary	27	43,731	48.8	3.37
Residential	18	31,793	35.5	3.43
Residential-dining	1	440	.5	3.06
Dining	2	2,178	2.4	2.81
Student center	2	3,480	3.9	3.34
Student center-residential	3	4,780	5.3	3.37
Dispensary	1	1,060	1.2	3.06
Campus improvements	6	3,672	4.1	3.04
Heating plant	2	1,112	1.3	3.00
Land	3	1,370	1.5	3.06
Parking	1	1,190	1.3	3.06
Total, public institutions	36	89,653	100.0	3.17
	Private institutions			
Type of financing: HHFA	17	13,239	100.0	3.30
Type of bond: Revenue	17	13,239	100.0	3.30
Type of facility: Auxiliary	17	13,239	100.0	3.30
Residential	9	4,412	33.3	3.41
Residential-dining	4	2,285	17.3	3.38
Student center	1	810	6.1	3.50
Student center-residential	3	5,732	43.3	3.17
Total, private institutions	17	13,239	100.0	3.30
	All institutions			
Type of financing:				
HHFA	24	21,376	20.8	3.37
Other	29	81,516	79.2	3.14
Type of bond:				
Revenue	33	38,252	37.2	3.50
General obligation	20	64,640	62.8	3.01
Type of facility:				
Academic (instructional)	3	42,250	41.0	2.98
Auxiliary	44	56,970	55.4	3.35
Residential	27	36,205	35.2	3.42
Residential-dining	5	2,725	2.7	3.33
Dining	2	2,178	2.1	2.81
Student center	3	4,290	4.2	3.37
Student center-residential	6	10,512	10.2	3.26
Dispensary	1	1,060	1.0	3.06

Bonds sold for higher education, August 1963: Number and amount of sales and average net interest cost, by type of institutional control, type of financing, type of bond, and type of facility to be constructed—Continued

Type of financing, bond, and facility	Number of sales	Bonds sold		Average net interest cost (percent)
		Amount (000)	Percent of total	
	All institutions—Con.			
Type of facility—Con.				
Campus improvements	6	3,672	3.6	3.04
Heating plant	2	1,112	1.1	3.00
Land	3	1,370	1.3	3.06
Parking	1	1,190	1.2	3.06
Total, all institutions	53	102,892	100.0	3.19

Private institutions are borrowing to finance auxiliary facilities only—residential facilities, dining facilities, student centers, and facilities which combine these. Public institutions, however, are borrowing for academic facilities as well, and for campus improvements: of the funds borrowed in September, they used half for auxiliary facilities (48.8 percent), only slightly less (47.1 percent) for academic facilities, and the rest for campus improvements—specifically, 2 heating plant projects, 3 purchases of land, and 1 parking facility.

The first 8 months of 1963 show that colleges and universities are depending more heavily than last year on borrowed funds to finance their facilities. During January–August 1963, public institutions borrowed almost $402 million, or an average of more than $50 million a month; during all of 1962 they borrowed $443 million, or less than $37 million a month. Private institutions have already gone beyond the amount they borrowed in 1962: their total for the first 8 months of 1963 was $138 million, compared to $127 million in 1962. Together, public and private institutions are borrowing, on the average, 42 percent more each month than in 1962; private institutions, which are showing the greater increase, are borrowing 64 percent more.

U.S. GOVERNMENT PUBLICATIONS

Office of Education

FOR SALE

Order from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Remittance must accompany order.

The Dropout: Schools Search for Clues to His Problems: Information: Terms and Computations, reprint from May 1963 *School Life,* 16 pp., 10 cents (OE–20055).

Faculty and Other Professional Staff in Institutions of Higher Education: First Term 1959–60, by Felix H. I. Lindsay, 1963, 80 pp., 55 cents (OE–53000–60).

Handbook, Office of Education: Including Career Opportunities, 1963, 37 pp., 25 cents (OE–11002–A).

Higher Education Basic Student Charges, 1962–63: Tuition and Fees, Board and Room, by Louis A. D'Amico and W. Robert Bokelman, 1963, 59 pp., 40 cents (OE–52005–63).

High School Dropouts: A 20th Century Tragedy, 1963, 8-page leaflet, 5 cents (OE–20053).

Library Science Dissertations, 1925–60: An Annotated Bibliography of Doctoral Studies, by Nathan M. Cohen, Barbara Denison, and Jessie C. Boehlert, 1963, 119 pp., 75 cents (OE–15044).

National Development Through Social Progress: The Role of Education, by Kenneth L. Neff, 1963, 15 pp., 15 cents (OE–10027).

New Construction and Rehabilitation on College Campuses: 1959–60 and 1960–61, by W. Robert Bokelman and Leslie F. Robbins, 1963, 54 pp., 40 cents (OE–51002–61).

1964–65 Modern Foreign Language Fellowship Program: NDEA Title VI and NDEA-Related Projects Under the Fulbright-Hays Act, 1963, 15 pp., 15 cents (OE–55034).

Nonpublic Secondary Schools: A Directory, 1960–61, Showing Accreditation Status, Enrollment, Classroom Teachers, and Other Data, by Diane B. Gertler and Leah W. Ramsey, 1963, 106 pp., 75 cents (OE–20043).

Programs for the Educationally Disadvantaged: A Report of a Conference on Teaching Children and Youth Who are Educationally Disadvantaged, May 21–23, 1962, Washington, D.C., 1963, 105 pp., 50 cents (OE–35044).

Science and Mathematics Teachers in Public High Schools, by Ellsworth S. Obourn and Kenneth E. Brown, 1963, 37 pp., 20 cents (OE–29045).

Standard Industrial Classification for Use in Distributive Education, 1963, 12 pp., 10 cents (OE–82013).

Statistics of Nonpublic Secondary Schools, 1960–61: Type of School, Enrollment, and Staff, by Diane B. Gertler, 1963, 53 pp., 40 cents (OE–20050).

Supervision for Quality Education in Science: Report of a Conference Arranged by the Specialists for Secondary Science: June 25–29, 1962, by Uhlman S. Alexander, 1963, 172 pp., 65 cents (OE–29039).

Survey of State Legislation Relating to Higher Education: January 1, 1962, to December 31, 1962, by S. V. Martorana and Ernest V. Hollis, 1963, 135 pp., $1 (OE–50008–62).

Teacher Turnover in Public Elementary and Secondary Schools: 1959–60, by Frank Lindenfeld, 1963, 28 pp., 25 cents (OE–23002–60).

What Standards Do We Raise? New Dimensions in Higher Education, Number 12, by Winslow R. Hatch, 1963, 28 pp., 15 cents (OE–53019).

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Eastern Europe, by Lois B. Watt and Dale F. Berger, *Educational Materials Laboratory Report,* vol. V, No. 3, June 26, 1963, 8 pp. (OE–14031–25).

Evaluating Elementary Schools, by Gertrude M. Lewis and Esther Murow, June 1963, 23 pp. (OE–20052).

Grouping Children in the Elementary School: Research and Implications, by Jane Franseth, Rose Koury, and others, July 1963, 20 pp. (OE–23032).

Honors Programs for Superior Undergraduate Mathematics Students, by Clarence B. Lindquist [1963], 6 pp. (OE–56015).

The National Defense Student Loan Program: Including Participating Institutions, 1963–64, 1963, 41 pp. (OE–55001–64).

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The Provision of Food Services to Students in Colleges and Universities: 1961–62, by Louis A. D'Amico and Linda L. Wright, April 1963, 5 pp. (OE-52004-4).

Publications and Articles: Library Services Branch, August 1963, 25 pp. (OE-15045).

Title VII—New Education Media, News and Reports: Sixth Special Edition, by Harvey Liebergott and Shirley Radcliffe, August 1963, 17 pp. (OE-34002-9).

Other Agencies

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The arts

Basic Music, Departent of Defense, 1961, 171 pp., $1, D 208.11:M 97/961.

Prepared for military personnel, this booklet discusses the nature of sound, fundamental notation, meter, intervals, scales, transposition, musical instruments, direction for performance, and devices peculiar to dance music.

Edwin Arlington Robinson, Library of Congress, 1963, 39 pp., 25 cents, LC 1.2:4 56.

Presents a reappraisal of Edwin Arlington Robinson by Louis Untermeyer, with a bibliography of his works and a list of the material in the Robinson exhibit at the Library of Congress.

The Imagination in the Modern World, Library of Congress, 1962, 40 pp., 25 cents, LC 29.9:Sp 3.

Contains three lectures presented under the auspices of the Gertrude Whittall Poetry and Literature Fund.

Isleta Paintings, Smithsonian Institution, clothbound, boxed, $10, SI 2.3:181.

Reproductions of 141 paintings of secret tribal rites by an anonymous Pueblo Indian, with explanatory text by Elsie Clews Persons, eminent ethnologist. The volume was edited by Esther S. Goldfrank, an authority on the Indians of the Southwest.

The National Watercraft Collection, Smithsonian Institution [1960], 327 pp., clothbound, $3.50, SI 3.3:219.

A comprehensive catalog of the watercraft collection of the U.S. National Museum. Contains many illustrations of merchant sail, merchant steam, and fishing craft and plans of old ships.

Conservation

In Your Service—The Work of Uncle Sam's Forest Rangers, 1955, Department of Agriculture, 24 pp., 20 cents, A 1.75:136.

Describes the duties of U.S. forest rangers—protecting national forests, looking after grazing lands, developing homes for wildlife, safeguarding water supply, and providing facilities for recreation.

More Wildlife Through Soil and Water Conservation, rev. 1963, Department of Agriculture, 16 pp., 10 cents, A 1.75:175/3.

Describes what many farmers and ranchers are doing to help increase the amount of wildlife through conservation.

The Story of the Colorado-Big Thompson Project, 1963, Department of Interior, 56 pp., 70 cents, I 27.2:C71/10.

Outlines the features of the Colorado-Big Thompson Project and its history, dating back nearly a century.

United States Department of the Interior Forest Conservation, rev. 1962, Department of Interior, 82 pp., 35 cents, I 1.72:42/2.

Discusses the history and activities of the bureaus of the Department of Interior in relation to forest management and development.

Current history

Africa's Unfinished Struggle for Freedom: The Real Issues, 1963, Department of State, 16 pp., 10 cents, S 1.116:28.

An address by Robert C. Good, Director, Office of Research and Analysis for African Affairs, Department of State, made before the Africa Institute.

Our Flag, 1960, Department of Defense, 24 pp., 25 cents, D 2.14:5–6a.

Unfolds many historical facts about the flag of the United States. Contains information on displaying the flag and approved flag customs.

Department of State 1963: A Report to the Citizen, 1963, Department of State, 152 pp., $1.50, S 1.71:187.

A 152-page illustrated booklet rounding up major foreign policy development of the past year. It is a report to the citizen on today's Department of State and the Foreign Service and their aims and accomplishments.

Major Accomplishments of the U.N. General Assembly, 17th Session, 1963, Department of State, 15 pp., 10 cents, S 1.70:38.

Presents a statement made by Ambassador Adlai E. Stevenson at a press conference at United Nations Headquarters on December 21, 1962, on the major accomplishments of the 17th General Assembly.

NATO, 1949–1959: The First Ten Years, 1959, Department of State, 44 pp., 25 cents, S 1.70/1:40.

A report on the first 10 years of the North Atlantic Treaty Organization.

You and the United Nations, 1962, Department of State, 55 pp., 25 cents, S 1.70:35.

Contains twenty-one questions and answers about the United Nations—how it works, what it has done, and what value it has for the United States.

Social Sciences

Bibliography of Social Science Periodicals and Monograph Series: Denmark, 1945–1961, 1963, Department of Commerce, 111 pp., 60 cents, C 3.163/5:11.

A bibliography including, to the fullest extent possible, periodicals and monograph series on the social sciences published in Denmark in 1945 or later which are available in the Library of Congress.

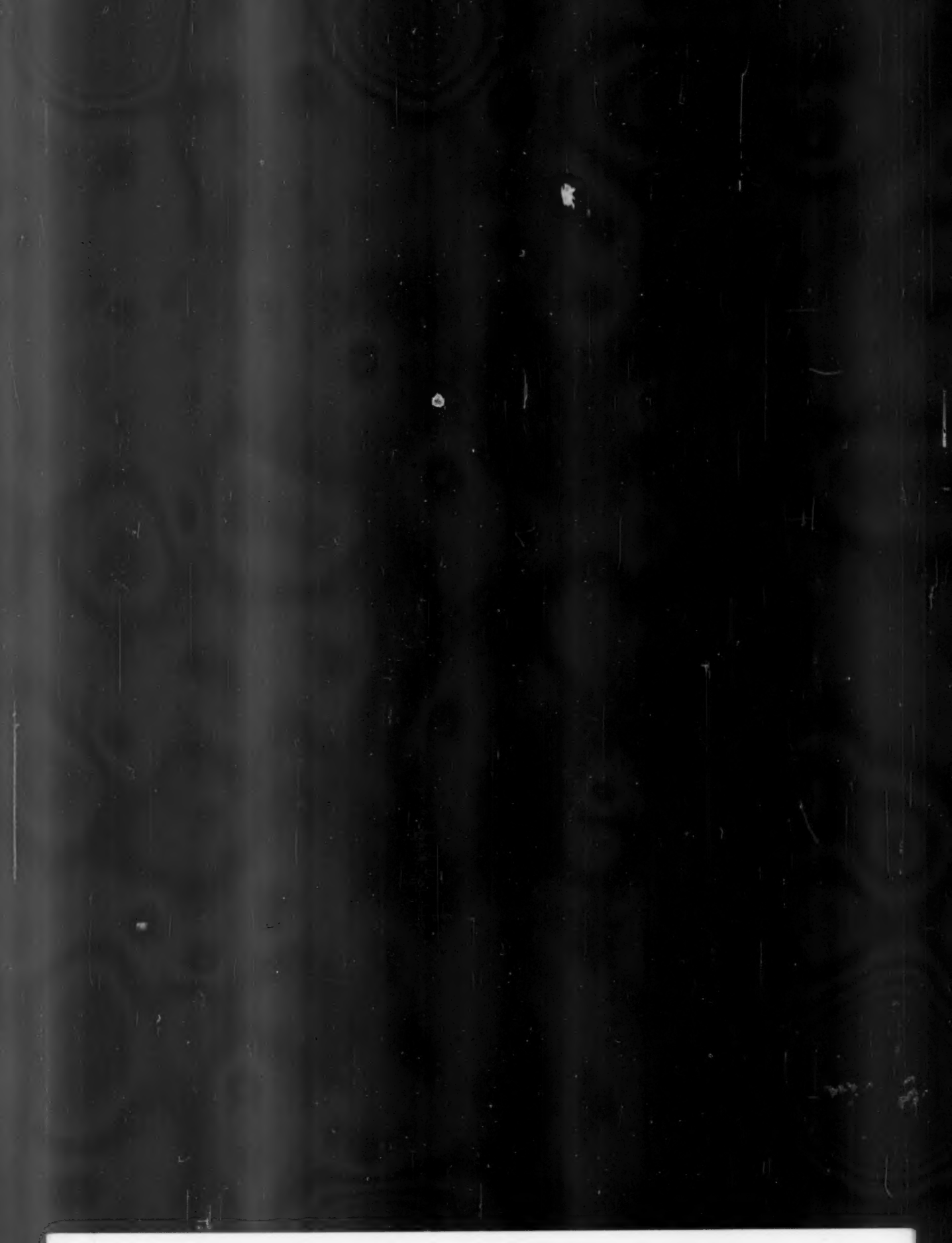
Civil Rights '63: 1963 Report of the United States Commission on Civil Rights, 1963, United States Commission on Civil Rights, 268 pp., $1.

The third biennial report of the Commission to the President and to the Congress. Contains sections on voting, education, employment, housing, justice, health facilities and services, urban areas, and the Armed Forces. It presents facts and contains the recommendations of the seven committee members, most of whom are educators. It also contains a summary of the two previous reports and a list of other publications issued by the Commission.

Do You Know Your Economic ABC's?, 1963, Department of Commerce, 40 pp., 20 cents, C 1.2:Ec7/3.

An explanation in simple terms of the gross national product as it reflects the Nation's economy.

How Our Laws Are Made, 1963, 88th Congress, 1st session, 41 pp., 20 cents, 88–1:H.doc. 103.

A brief manual providing a concise, factual explanation of how Congress goes about making laws. It presents an outline of the background and the steps in the Federal lawmaking process from the origin of an idea until it becomes a statute.

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